Researching Ways to Improve Function of Damaged Retinas
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Reflections During A Time of Transition

Greetings from the College of Veterinary Medicine!

As I was writing this message from the Dean’s chair during the 2006 year end holiday period, I was prompted to reflect on the happenings in the college during the past year. 2006 was certainly an eventful year for the college on a number of fronts. Perhaps the most notable occurrence was the transition in the deanship of the college as Dean Joe Kornegay stepped down after serving the CVM for nearly 13 years, approximately four and a half years as department chairman and hospital director and more than eight years as dean. Reflecting on Dean Kornegay’s time at MU, one readily concludes it was truly a remarkable period in our college’s history.

Recognizing an inherent risk of possibly omitting some of Joe’s important contributions to the college, I will attempt here to briefly highlight a number of the most significant advances occurring under his leadership. These include unprecedented growth in the research arena with record levels of attainment in the college’s extramurally funded research. Establishment of three NIH-funded animal core centers and garnering funds for a regional bioccontainment laboratory were seminal accomplishments during his reign as dean. Many outstanding faculty members, both in research and clinical areas, were successfully recruited under his watch. All open faculty positions supported by endowed professorships or aligned with endowed programs were filled. Other very significant accomplishments during his deanship were enrollment expansion, full AVMA accreditation, and investment in clinical diagnostic upgrades in the teaching hospital which include spiral CT, MRI, and digital radiography equipment. Remarkably, these achievements occurred in the face of several years of reduced or static state funding.

Joe was amazingly able to maintain a robust research program while serving in the many complex roles asked of him as dean. His work on muscular dystrophy, focusing on a canine model, was not only sustained but expanded considerably during his tenure at MU. The canine colony he developed is widely recognized as providing an excellent naturally-occurring animal model for study of Duchene muscular dystrophy, a progressive neuromuscular disease of children and young adults. With the able support of Janet Bogan, laboratory supervisor, and Dan Bogan, senior research specialist, the canine colony grew substantially during his time at MU providing exciting opportunities for advancement of studies which evolved toward investigations of potential gene therapies for this debilitating disease. This model offers extraordinary possibilities for collaborations with investigators from other universities and research institutes on molecular genetics and potential novel therapies for DMD. In this context, the position extended to Joe as a Research Professor in the Department of Pathology and Laboratory Medicine, School of Medicine, and the Gene Therapy Center, University of North Carolina–Chapel Hill, is truly extraordinary and a tremendous fit for his continuing research career.

The college, university, and profession are indeed indebted to Joe for his many years of service to veterinary medicine and the biomedical community in the state of Missouri. While serving as dean, Joe was an excellent ambassador for the college in many forums including interfacing with prospective donors, commodity groups, the Missouri Veterinary Medical Association, and the North American dean’s group. He served the college and profession in an exemplary fashion by actively engaging in a number of programmatic initiatives at campus, state, regional, and international levels. Joe was, and indeed remains, the quintessential gentleman, scholar, and highly respected professional. We truly wish him the very best in his new endeavors at the University of North Carolina!

As we now look to the future of the college, selection of a new dean is our highest collective priority. In this regard, MU’s Provost, Dr. Brian Foster, has appointed a search committee chaired by Dr. John Dodam, associate dean for academic affairs, and Dr. Michael O’Brien, dean of the College of Arts and Sciences. Your support of the search committee and engagement in the search process are essential in the recruitment of a new dean at this critical juncture in our college’s history. A web page has been created (http://www.cvm.missouri.edu/news/DeanSearch.htm) which contains information about the search committee, the position, and the search process. Questions about the search process or the position may be directed to provostsearch@missouri.edu.

When asked by Provost Foster to serve as the interim dean, I was both honored and humbled as I accepted this important transition role. I am particularly honored to be the first MU CVM graduate to have served in this capacity and accept this challenge wishing sincerely to serve the college and profession in the best ways possible during this time of transition.

In closing, as a college I believe this is indeed a time for self-assessment and renewal. It is appropriate that we take stock of our assets and potential, build on the ground work already laid, and view with optimism those many opportunities which lie before us.
Class of 2007 Student Snares First Place in Purina Challenge

Collegiate athletics aren’t the only contests in higher education. The annual Nestle Purina College Challenge gives veterinary students the opportunity to match wits on topics ranging from anatomy to internal medicine.

At stake is thousands in prize money and a lot of bragging rights.

Taking first place in the 2007 competition was Kristin “Krissy” Bussmann, a Springfield, Mo., native and class of 2007 member of the University of Missouri College of Veterinary Medicine.

She competed against students representing veterinary colleges from across North America. The competition set up as a quiz bowl with questions similar to those on the annual Nestle First Place in Purina Challenge.

This wasn’t the first time MU scored well. Taking first place in the 2005 competition was Joanna Buckley, MU Class of 2005.

“The competition is held during the North American Veterinary Conference (NAVC). Veterinary medical students serving as their school’s delegates are invited to participate in the competition, which is loosely based on popular TV game shows. Students amassing the greatest number of points during five rounds of competition advance to the next level of the challenge until the field is narrowed to two finalists. NAVC attendees are the “studio” audience and sessions are telecast on the NAVC closed-circuit network.

Ms. Bussman heard about the competition during her first year of vet school. “I remember my former roommate mentioning that a Mizzou student had won the Purina Challenge that year,” Ms. Bussman explains. “At that point in time, I had never heard of the Challenge, but I secretly hoped that I would have the opportunity to compete. I can’t believe how far I’ve come and how much I’ve learned since then. I feel like a totally different person, and I feel so fortunate to be this year’s winner.”

“The competition is extremely tough,” said Dan Christian, DVM, Nestle Purina director of professional communications. “Each year we hope for even higher standards of intellect, veterinary knowledge, and, most of all, fun competition between representatives from all of the schools.”

“The college is extremely proud of Krissy as she represented our school in an award winning style,” said Dr. Ron Cott, associate dean for student and alumni affairs. “When you are competing against the best and the brightest and you take home the winnings it speaks highly of our program, our instructors, and our students. Krissy has made us very proud and will do so again when she receives her degree.”

Missouri Governor Appoints MU Veterinary Radiologist to State Post

Missouri Gov. Matt Blunt appointed Dr. Lisa Britt, clinical assistant professor in Radiology at the University of Missouri College of Veterinary Medicine, to serve on the state’s Organ Donation Advisory Committee.

The committee is part of the Missouri Department of Health and Senior Services and advises state government on organ donation policies. Committee members represent organ recipients, health care providers, and state government.

Dr. Britt holds bachelor’s degrees in poultry science and animal science, a doctor of veterinary medicine from North Carolina State University, and a master’s in veterinary science from Washington State University.

Healed Raptors Released Back to Missouri Forests

Chipper, London, Willlow, and Erol are back in familiar territory, the green trees of central Missouri. The birds were released June 2006 by the MU Raptor Rehabilitation Group, volunteers who take in injured birds of prey, rehabilitate them, and then give them a second chance at life in the wild.

The project was founded in 1972 by MU students to educate the public about birds of prey, educate veterinary medical students about the husbandry and medicine of these wild birds, and, most importantly, to treat injured raptors and return them to the wild.

The group must employ unique medical skills to heal and rehabilitate these lightweight and specialized animals. Often, the group has to help birds regain their flying skills in specially constructed flight cages.

Raptors are birds that hunt. They include eagles, hawks, and owls. If left in the wild, they will most likely die of their injuries because they cannot catch food or elude predators. The Raptor group rescues injured birds from state and local police and governmental agencies.

Chipper is mature barred owl brought in the winter of 2005 with a right ulnar fracture in his wing. After orthopedic pin placement, Chipper underwent reconstructive surgery. After healing, group members provided him physical therapy to rebuild his atrophied muscles.

After being hit by a car in November 2005, the mature barred owl Willow was brought to the Raptor group with right clavicular and coracoid fractures and severe trauma to the right eye, including partial retinal detachment. Many months of cage rest and countless eye drops drops later, Willow’s retina reattached sufficiently for successful hunting and flying.
Dr. Cecil Moore Assumes Lead of MU College of Veterinary Medicine

Dr. Cecil Moore, DVM, MS, was recently named Interim Dean of the University of Missouri College of Veterinary Medicine.

Dr. Moore is a professor and chairman of MU’s Veterinary Medicine and Surgery department, and director of the Veterinary Medical Teaching Hospital.

Dr. Joe Kornegay, DVM, PhD, and dean of the college from 1998, accepted a new position at the University of North Carolina-Chapel Hill effective Oct. 16, 2006. His primary appointments will be in the university’s Gene Therapy Center and the School of Medicine Department of Pathology and Laboratory Medicine, with a secondary appointment in the Department of Neurology.

MU has begun a national search, a process that could take one to two years.

Dr. Moore earned a Bachelor of Science degree in Zoology from Northeast Missouri State University in Kirksville. His DVM degree was awarded by the MU College of Veterinary Medicine in 1972. After six years of private practice, he returned to the college where he completed a residency in comparative ophthalmology in 1980.

He joined the University of Wisconsin veterinary faculty in 1982 where he completed a research Master of Science degree from the medical school there.

He returned to MU in 1986 where he served as the head of the Ophthalmology Section, Small Animal Section coordinator, and Interim Associate Department chair. He was named Acting/Interim Chairman of the MU Veterinary Medical Teaching Hospital in 1998 and the Chairman in 2000.

MU Veterinary Professor Recognized By Veterinary Clinicians Organization

Leah A. Cohn, associate professor of small animal internal medicine at the MU Veterinary Medical Teaching Hospital, was selected as the 2006 American Association of Veterinary Clinicians (AAVC) Faculty Achievement Award winner.

The AAVC was formed in 1958. It is an organization of veterinary clinicians engaged in teaching and/or research at the professional, graduate, or postgraduate level. Membership includes faculty in clinical departments at veterinary schools and colleges and practices and institutions involved in the education of veterinarians in internships and residencies. Its mission is to enhance the quality of veterinary clinical teaching, service, and research.

Dr. Cohn earned her DVM degree from the University of Tennessee, Knoxville, and her PhD in Veterinary Microbiology and Immunology from North Carolina State University, Raleigh.

She is a Diplomate in the American College of Veterinary Internal Medicine. Her research emphasis centers on infectious and immune mediated disease and airway disease, including cystic fibrosis, and diabetic mellitus. Current projects include investigation of Cytauxzoan felis infection in cats.

College of Veterinary Cyclists Raise Funds to Fight MS

Faculty and staff of the Mizzou College of Veterinary Medicine recently raised $3,000 for research to cure Multiple Sclerosis.

The cycling team participated in the Multiple Sclerosis Society’s two-day MS 150 Bike Tour through central Missouri. The cyclists, sponsored by Nestle Purina, followed either a 40, 75, or 100-mile route each day. More than 2,000 riders participated in the annual event and raised more than $2 million. The tour is one of 100 tours nationally that raised more than $60 million in 2006.

The MU team captain was Frank Whitchurch, class of 2007 MU veterinary medical student. Team members are Dr. Linda Berent, Dr. Joan Coates, veterinary student Jeffrey Dill, Dr. Mika Katayama, Janelle Lawrence, veterinary student Christine McPherson, Dr. Kelly Whitchurch, and Lauren Worley.

MS is a chronic, unpredictable neurological disease that affects the central nervous system. About 400,000 Americans live with MS.

The team will come together next year for the 2007 MS races. New members are welcome to join.

CVM Faculty Share Knowledge At AVMA’s Annual Convention

MU College of Veterinary Medicine faculty were well represented at the 143rd American Veterinary Medical Association Annual Convention held in July 2006. Eight of the convention’s invited speakers were from MU.

Almost 4,000 veterinarians, 270 veterinary students, 400 technicians, and 130 office staff attended the convention. Invited speakers are considered to be among the best and brightest in the profession.

Dr. Leah Cohn, immunologist and infectious diseases associate professor, spoke on non-infectious causes of fever.

Dr. James (Jim) Cook, associate professor in orthopedic surgery, discussed osteoarthritis, minimally invasive orthopedic surgery, comprehensive management of cranial cruciate ligament disease, and the treatment of open fractures. He also delivered an invited lecture translated for the Japanese audience on minimally invasive surgery.

Dr. Carolyn Henry, associate professor and director of the Scott Endowed Oncology Program, gave three hours of lecture on bladder cancer in dogs and osteosarcoma—both of which are tumors for which she has active clinical trials at the MU Veterinary Medical Teaching Hospital. Dr. Henry was also asked to present these talks in the Japanese Program with non-simultaneous translation.
Mr. Zac March, director of the college’s informational technology efforts and clinical assistant professor, presented hands-on sessions on various technology/computer related topics intended to introduce veterinary professionals to computer applications and processes. These presentations included creating an effective PowerPoint presentation, video editing, web page creation, database management, and advanced search strategies in medical databases.

Dr. Dusty Weaver Nagy, assistant professor in the food animal program, presented programs on lymphosarcoma in cattle and effective diagnosis of neurologic disease in cattle.

Dr. Eric Pope, associate professor, lectured on reconstructive surgery in small animals, skin flaps, skin grafts, and simple techniques for closing difficult wounds. Additionally, he spoke on gastric dilatation-volvulus and portosystemic shunts. Dr. Pope was the AVMA’s general surgery program coordinator in such areas as soft tissue surgery, dentistry, and laser surgery demonstrations.

Dr. Carol Reinaro, assistant professor with interests in respiratory diseases, spoke about feline asthma. She also chaired clinical respiratory case discussions.

Dr. Jeffrey Tyler, director of clinical research, professor, and food animal area coordinator, delivered presentations in management strategies to prevent beef calf mortality, limitations and applications of serology in beef practice, and alternatives to traditional herd health programs in beef herds.

MU Vet Med Professor Emeritus Named Phi Zeta President

Robert McClure, DVM, PhD, and professor emeritus of the MU College of Veterinary Medicine, was elected as president-elect of The Society of Phi Zeta. Phi Zeta is an honor society of veterinary medicine with chapters at most colleges. The objective of the society shall be to recognize and promote scholarship and research in matters pertaining to the welfare and diseases of animals.

Dr. McClure earned his DVM degree from Iowa State University and his Veterinary Anatomy-Surgery PhD from Cornell. He was a professor of veterinary anatomy at the MU from 1960-2000. who also played a role in the dog’s recovery.

The resolution is the second recently received by the college. Earlier, the House of Representatives honored the college’s team of mascot Missouri Mules, Tim and Terry, for their efforts in helping to teach the importance of these animals in early Missouri agriculture.

Inactivity Investigator Awarded International Honor Award

Frank Booth, PhD and director of the Health Activities Center at MU, was recently awarded the Honor Award at the 13th International Conference of Biochemistry of Exercise at Olympic Park in Seoul, Korea.

Dr. Booth is a professor with joint appointments in the College of Veterinary Medicine’s Biomedical Sciences Department, and the Department of Physiology in the School of Medicine.

The Honor Award is given to a scientist who has made substantial contributions in research dealing with the biochemistry and nutrition of exercise.

Dr. Booth’s research studies how exercise signals are sensed, transduced, and effect the expression of genes in skeletal muscle. The MU Health Activity Center is made up of researchers spanning the sciences at MU. They are dedicated to ending the 35 inactivity-related disorders. The Center uses medical research to determine the biological basis of how physical inactivity makes the body susceptible to chronic disease and disorders such as obesity, type 2 diabetes, atherosclerosis, hypertension, physical frailty, cancer, and arthritis.
R. Scott Rector was recently presented the first Health Activity Center M. Harold Laughlin Scholarship at the MU College of Veterinary Medicine.

Exercise Physiology Researcher Awarded First Harold Laughlin Scholarship

R. Scott Rector, graduate research assistant at the Mizzou College of Veterinary Medicine, was the first recipient of the new Health Activity Center M. Harold Laughlin Scholarship.

Dr. Rector earned his PhD in exercise physiology from MU this spring. His research examines weight loss by energy restriction and aerobic training improvements. His dissertation investigated the impact of lifestyle modifications on markers of oxidative stress and antioxidant defense systems, associated changes in insulin sensitivity, and risk factors for cardiovascular disease.

The scholarship, funded by an anonymous donor, established the permanently endowed fund at MU in honor of Dr. M. Harold Laughlin, director of the Biomedical Sciences Department at the College of Veterinary Medicine. The fund is designed to provide awards to graduate students, postdoctoral fellows, medical students, interns or residents, and/or veterinary students, interns or residents who contribute outstanding research in physical inactivity and chronic disease or promote physical activity and health—local points of the Health Activity Center at the University of Missouri.

Three Food Animal-Related PhDs Graduate at MU Veterinary Medicine

It is unusual for a single section of a college of veterinary medicine to graduate three PhDs in a single commencement ceremony. Recently, the University of Missouri College of Veterinary Medicine saw just that.

Doctors of Veterinary Medicine Dusty Weaver-Nagy, Maisie Dawes, and Ron Tessman each added a food animal-related PhD to their accomplishments.

The Food Animal Section is one of the busiest in the country, maintaining active programs in teaching, service and research. Missouri is the second largest state in cow-calf production.

Three Earn Food Animal PhDs

At this Spring’s University of Missouri College of Veterinary Medicine’s graduation ceremonies, Dr. Jeff Tyler (left), director of the college’s clinical research and head of the food animal section, stands next to Dr. Dusty Nagy, Dr. Maisie Dawes, and Dr. Ron Tessman. Dr. Tyler served as graduate advisor.

Harold Laughlin Honored as Missouri Curators’ Professor

Dr. Laughlin is recognized as one of the leading researchers in how exercise positively affects a person’s cardiovascular health. Since 1981, the National Institutes of Health has funded his research using pigs as a model for humans. The goal of this research is to understand the effects of exercise training on the coronary circulation and skeletal muscle vascular beds. Exercise training produces increases in the capacity of myocardial and skeletal muscle vascular beds to transport oxygen and other nutrients. Importantly, Dr. Laughlin’s research has demonstrated positive effects of physical activity on the cells of artery walls, smooth muscle and endothelial cells.

Dr. Laughlin received his undergraduate training at Simpson College in Indianola, Iowa. His PhD was earned at the University of Iowa where he also was a postdoctoral fellow. He trained in physiology at the USAF School of Aerospace Medicine.

Before joining the MU in 1985, Dr. Laughlin was a physiologist for the Air Force and associate professor of physiology at Oral Roberts University Medical School, Tulsa.

Of 30 significant awards and honors, Dr. Laughlin has earned the Beecham Award for Research Excellence, the Hitchcock Award for Excellence in Aerospace Physiology, and the Citation Award from the American College of Sports Medicine.

Harold Laughlin, PhD, professor and chair of Biomedical Sciences at the Mizzou College of Veterinary Medicine, was recently named a Curators’ Professor by the University of Missouri Board of Curators.

A Curators’ Professorship is the highest and most prestigious academic rank awarded by the university’s Board of Curators. It is awarded to a select few outstanding scholars with established national reputations.

Each Curators’ Professor becomes a resource of the entire university and is expected to contribute to the institution through such activities as giving lectures on other campuses and engaging in teaching and research across divisional lines.

Nominations are made by colleagues who supply supporting documentation. Only outstanding scholars with established reputations are considered for appointment.

In his letter notifying Dr. Laughlin of this achievement, University of Missouri President Dr. Elson Floyd noted that, “This honor comes in recognition of your exemplary service to the MU. Your peers have applauded your national leadership in the science of integrative physiology. Your many contributions to public higher education have brought credit to the university.”
The 1970’s television program The Six Million Dollar Man envisioned a day when electronics would augment human physiology. Today, some of those ideas are being tested. Dr. Kristina Narfstrom, University of Missouri College of Veterinary Medicine’s Ruth M. Kraeuchi-Missouri Professor in Veterinary Ophthalmology, is researching ways to surgically implant a microchip to take over for parts of the non-functioning retina, the light-sensitive structure in back of the eye. The microchip is designed to replace damaged or dying visual cells by sending electrical impulses, rather than visual information, directly to the brain where the information will be processed into an image.

Dr. Narfstrom is assisting the company that developed the chip, Optobionics of Naperville, Illinois, in ways to improve surgical implantation techniques in cats and develop methods to enhance the information that reaches the brain.

The implant may someday provide at
teaching. healing. discovery

Only a few days after the microsurgery, a blind cat shows no outward signs of the procedure beyond a slightly increased tearing that goes away in a few weeks. Such results indicate that the surgical procedure will require minimal recovery time for humans who undergo the implantation.

Some of Dr. Narfstrom’s research will evaluate outcomes of the implantation and evaluate technical updates to the retinal microchip.
least partial vision to individuals who would otherwise be blind due to generalized death of the visual cells of the retina and the photoreceptors. Such a breakthrough would help patients with end-stage retinitis pigmentosa (RP), age-related macular degeneration (AMD), and other retinal blinding conditions.

The device, called the Artificial Silicon Retina (ASR), is a silicon microchip, 2 mm in diameter and 23 microns thick, less than the thickness of a human hair. It contains several thousand microscopic solar cells called microphotodiodes, each with its own stimulating electrode. These microphotodiodes convert light energy into electrochemical impulses that can stimulate the remaining functional cells of the patient’s retina. Signals are then sent via the optic nerve to the brain.

Powered solely by incident light, the ASR microchip does not require the use of external wires or batteries.

Animal Models For Human Diseases

In early laboratory studies, animal models implanted with prototype ASR devices sometimes responded to light stimuli as measured by retinal electrical signals (ERGs). Brain-wave signal (VEP) data showed a response more often. This indicated that some information was getting to the brain.

That led to the first human clinical trials in June 2000 when Optobionics implanted its microchip into the sub-retinal space, just under the retina, in ten patients with RP to study its safety and feasibility in treating vision loss. These tests were promising as no patient showed signs of implant rejection, infection, inflammation, erosion, or retinal detachment related to the implanted device.

Dr. Narfstrom’s work is the latest phase of this research. Her work involves cats, who suffer with many of the same hereditary blinding diseases as people do. Dr. Narfstrom has spent her professional career, spanning continents, studying vision-threatening diseases caused by genetic defects. One of her research specialties is RP, a hereditary and blinding retinal disease of humans that affects approximately 1 person in 3,500—and strains of Persian and Abyssinian cats.

RP is a general term for a number of diseases that predominantly affect the photoreceptor layer or “light sensing” cells of the retina, the rods and cones. Most forms of these diseases are hereditary and affect individuals early in life. Injury to the photoreceptor cells, in particular, reduces the retina’s ability to sense light signals. Despite this, the remainder of the retinal processing cells in other layers usually continue to function for an extended period of time.

Dr. Narfstrom’s MU laboratory is seeking an understanding of these hereditary causes of retinal blinding diseases in animals that have counterparts in humans. When these disease mechanisms are determined, her lab develops clinical
treatment strategies. Microchip implantation is one of several research projects.

A Microchip Into a Pocket

The microsurgical procedure consists of a standard ophthalmic operation called a vitrectomy and a retinotomy, plus the implantation of the microchip itself.

Dr. Narfstrom starts by making two tiny incisions into the RP-afflicted animal’s eye through which instruments are inserted. Through these incisions, the vitreous gel in the back of the eye is removed and replaced by a viscous solution.

An opening is made in the retina through which fluid is injected. The fluid lifts a portion of the retina creating a small pocket into the sub-retinal space, just wide enough to accommodate the ASR microchip. Then, the implant is carefully pushed into this space, much as one might slip a tiny coin into a pocket.

Finally, viscous solution is introduced into the middle of the eye to gently push the retina back down over the implant. The detached part of the retina heals over the implant in one to two weeks.

After each operation, extensive follow-up studies testing vision are performed by objective and psychological techniques.

Future Medical Implications

Developing a workable replacement for damaged retinas could have dramatic implications for a number of people. About 100,000 people in the United States have been diagnosed with RP. Worldwide, approximately 1.5 million people are affected, making it one of the most prevalent hereditary retinal diseases. Most victims are legally blind by age 40.

RP steals sight of young adults slowly. Most types of RP affect the mid-peripheral vision first and then progress to affect the far-periphery and, finally, the central areas of vision. Patients experience a narrowing of the field of vision into tunnel vision. Complete blindness is the end-stage of most forms of RP.

Related conditions that also cause severe retinal impairment or blindness include Usher’s Syndrome, Leber’s Congenital Amaurosis, Stargardt’s Disease, Cone-Rod Dystrophy, Best’s Disease, Choroideremia, and Gyrate Atrophy.

AMD is a degenerative condition that is common in the elderly. Researchers hope that these patients too may someday be aided by microchip implants.

AMD progressively decreases the function of the macula. This is the area of the eye’s highest level of visual resolution. Patients with macular degeneration experience a loss of their central vision, which affects their ability to read and perform visually demanding tasks. The exact cause is still mostly unknown.

Together, AMD and RP affect at least 30 million people worldwide. They are the most common causes of blindness in developed countries and there is no current means of treating these diseases.

“Although it sounds like science fiction today,” Dr. Narfstrom says, “the artificial silicon retina may prove to be a means of restoring at least some functional vision in humans with blinding diseases as well as in my feline and canine patients.”
Coronary heart disease remains the number one cause of death for both men and women in the United States. Since 1995, a team of University of Missouri researchers has studied the effects of exercise on the cardiovascular system using miniature Yucatan pigs and treadmills. That work will continue for at least five more years thanks to a $10 million grant renewal from the National Institutes of Health.

“MU has the only program in the world where scientists are studying pigs in this capacity,” said Harold Laughlin, chair of the MU College of Veterinary Medicine Department of Biomedical Sciences. “Our goal is to learn how exercise and activity can help prevent and treat heart disease. The next step is to educate the public and encourage them to exercise.”

MU researchers from the Department of Biomedical Sciences, the School of Medicine’s Department of Medical Pharmacology and Physiology, and the Dalton Cardiovascular Research Center study miniature Yucatan pigs because they have similar coronary anatomy to humans. Pigs also have a sedentary, or inactive, lifestyle, similar to that of more than half of American adults, according to the Centers for Disease Control and Prevention (CDC).

CDC statistics show that more than 900,000 Americans die from cardiovascular disease every year. Physical inactivity is a key risk factor in those deaths. Over the past 10 years, MU researchers have found regular physical activity can reduce the risk of developing and possibly dying from coronary heart disease.

Researchers have discovered many ways in which exercise benefits humans. One project focused on smooth muscle cells in the arteries of the heart. Contraction or relaxation of these cells produces constriction, or relaxation, of blood vessels in the heart. These cells are less likely to contract in large arteries of exercising subjects.

A second project is focused on cells that line blood vessels, also called endothelial cells. Dr. Laughlin said experts thought these cells only functioned as a lining for the blood vessels. However, research has shown that endothelial cells release chemical signals that prompt a number of responses, including blood vessel relaxation. Exercise makes it easier for endothelial cells to tell smooth muscles to relax, which could be beneficial in coronary heart disease.

In the next series of studies, researchers will study pigs with advanced heart disease in an effort to determine if exercise can reverse the damage. Dr. Laughlin suggests even if an effective treatment for heart disease is found, people should take appropriate measures to prevent the problem by choosing an active lifestyle and adopting healthy eating habits.

“As technology improves, media consumption increases, and exercise takes a backseat to inactivity, people of all ages are risking their health,” Dr. Laughlin said. “Inactivity itself is a disease, but it is a disease that we all can prevent.”

The NIH originally funded the project in 1994 with a five-year, $6.8 million grant. A renewal in 2000 provided an additional $8 million.
Of Dogs and Cancer

Dogs and people share a predilection to many cancers. Often a given cancer behaves the same in dogs as its counterpart in people and, therefore, new findings for dogs may benefit people and vice versa.

The Oncology Section at the University of Missouri Veterinary Medical Teaching Hospital, that treats cancers in animals with many of the same techniques as their human physician counterparts, has joined a new national research organization to better test new cancer treatment options.

Mizzou oncologists are now part of the National Cancer Institute’s Comparative Oncology Trials Consortium (COTC) within the NCI’s Comparative Oncology Program.

The consortium is designed to establish a national organizational infrastructure to undertake translational clinical trials in companion animals with cancer.

This comparative oncology consortium is based on collaborative relationships with accredited schools of veterinary medicine with existing strong companion animal oncology programs. The COTC will also collaborate with other NCI investigators and with researchers in the pharmaceutical industry.

Clinical trials will be implemented through the collective caseloads of member institutions with trial design, oversight, data management, and assessment of biological endpoints organized by the NCI. These trials will be small in scale and will emphasize the assessment of biological questions related to drug development. The design of these trials will answer essential questions surrounding agents destined for use in human patients.

MU’s Veterinary Medical Teaching Hospital is one of 14 facilities involved in the project and one of only 4 institutions chosen to participate in the first clinical trial of the Consortium.

All participants must meet strict staffing criteria and have MRI and CT imaging equipment, a dedicated clinical trials coordinator, tissue banking capability, on-site radiation therapy, and experience in electronic data recording.

“Our clinical trials are monitored and reported on the same bioinformatics backbone that exists for human trials,” said Dr. Chand Khanna, director of the program. He noted that the technology and procedures used in the veterinary colleges must comply with their NCI human equivalents.

The first clinical trial being conducted by the Consortium is the Evaluation of RGD (arginine-glycine-aspartic acid) Targeted Delivery of Phage Expressing Tumor Necrosis Factor (TNF) to Tumor Bearing Dogs. MU veterinary oncologists are working with their colleagues at Colorado State University, the University of Pennsylvania, and the University of Tennessee to test a targeted delivery method for administration of the cytokine TNF-alpha, a peptide, to blood vessels feeding a tumor. The TNF-alpha, toxic to tumor cells, is targeted to tumors through bacterial viruses known to “stick” to tumor vasculature. The intent of this approach is to deliver TNF specifically to blood vessels around tumors and in so doing, damage the blood supply to tumors.

The trial will evaluate the safety and effectiveness of the phage-based delivery of TNF-alpha in forty dogs with cancer from the participating institutions. Results of the trial in dogs will be used to design clinical trials in human cancer patients.

There are distinct advantages to canine studies that evaluate novel human clinical agents. Dogs are more genetically similar to humans than laboratory mice, and because of their larger size, their physiology more closely resembles that of humans. Dogs and humans share many of the same drug reactions and side effects. Also, dogs naturally develop cancers similar to humans, whereas such cancers have to be induced in mice.
A Career in Research

MU’s Veterinary Medical Scholars Program Exposes Students to Research Opportunities

W ith a broad knowledge of organismal biology, veterinarians are an important asset in biomedical research. In fact, labs can’t get enough of them.

Beginning this spring, MU will host its third Veterinary Research Scholars Program (VRSP). Co-sponsored by funds from Merck, Merial, Pfizer, and the MU College of Veterinary Medicine, the program gives first- and second-year veterinary students the opportunity to explore research careers through a mentored research experience.

As outlined in the National Research Council’s National Need and Priorities for Veterinarians in Biomedical Research, veterinarians, with their broad knowledge of animal biology, have a tremendous and unique potential to contribute to numerous scientific disciplines. Unfortunately, several recent studies have identified a critical shortage of veterinarians that pursuits research-oriented careers.

MU’s vibrant research community is an ideal setting for the development of veterinarians as biomedical researchers, says Dr. Craig Franklin, associate professor in veterinary pathology and who directs the MU effort. “This program provides a foundation in research methodology through an intensive research experience that includes state-of-the-art experimental methodology, seminars/discussions that give a broad exposure to biomedical sciences, and networking events to foster interaction and sense of community,” he said.

VRSP scholars selected for the program begin in April by designing a research project with guidance from a faculty mentor. Scholars may select mentors from one of the three veterinary school departments or they may venture to other labs on the MU campus to perform their research.

To facilitate project development, scholars participate in a two-session workshop. In last year’s first session, Dr. Kevin Keegan, associate professor in equine medicine and surgery and a noted equine lameness researcher, gave a presentation on the scientific method and hypothesis development. Scholars were asked to apply the concepts of this presentation to their projects. In the second session, scholars presented their project plans in small group settings and received critical feedback from faculty and peers.

Scholars hit the lab and began generating data. Project topics included atherosclerosis, cardiovascular function in space flight, emergency and critical care medicine, environmental toxicology, equine lameness, inflammatory bowel disease, and stem cell biology.

In addition to research, scholars met weekly to discuss research progress or attend seminars that included topics like comparative medicine research, careers in pathology and grantsmanship. Scholars also journeyed outside of the campus for a field trip to the Merial research farm in Fulton, Mo. where MU alumni Drs. Greg Royer and Marlene Dragg gave a tour of the facility and discussed career opportunities in pharmaceutical research.

The program isn’t all work. MU scholars met with scholars from Kansas State University’s program at Kansas City’s World’s of Fun amusement park to spend an evening barbequing and networking. “They really got to know each other during the ‘Lab Olympics,’ where four mixed teams of MU and KSU scholars competed in events such as the pipette race, the gel toss, and the biohazard sack race,” Dr. Franklin said.

Later in the summer, scholars reconvened with their KSU colleagues at the Stowers Institute, a world-renowned research institute in Kansas City. There, scholars were given one of four biomedical ethics case scenarios. Mixed teams were tasked with leading a discussion on their assigned scenario. Presentations were both educational and entertaining ranging from interactive discussions to skits.

The highlight for many of the scholars was the National Merck-Merial Symposium at Louisiana State University in Baton Rouge. There, scholars presented posters describing their research. They also attended seminars and mini-symposia lead by prominent scientists and learned about post-DVM training programs in biomedical research. Throughout the symposium scholars had opportunities to network with more than 250 scholars from 22 programs from the US and Canada. Many of the 2006 scholars have continued their projects with an opportunity to present their results at the annual Phi Zeta Research Day.

The 2006 VRSP attracted 10 students from the first- and second-year MU classes. “The VRSP has also had the good fortune of attracting students from other veterinary schools,” Dr. Franklin said. “In 2005, Heather Wills from The Ohio State University participated. In 2006, the program recruited Vicky Nelson from Illinois University and went international with the addition of Amanda Estabrooks from the Atlantic Veterinary College in Canada.”

New events planned for the 2007 VRSP include a visit by Dr. Michelle Haven, director of Pfizer Animal Health, lab show-and-tell, and interactive sessions with post-DVM graduate students currently pursuing biomedical research careers. “What the farther future holds remains to be seen,” Dr. Franklin said. “Perhaps the next big scientific breakthrough!”

For more information about the MU Veterinary Research Scholar’s Program can be found at http://www.cvm.missouri.edu/vrs/
For general information about research opportunities for veterinary students and veterinarians, see http://cvm.msu.edu/ORG/rps/nationalwebsite.htm

Veterinary Medical Review Spring 2007
Problems in the canine elbow joint often cause pain and lameness. Available treatments often don’t eliminate pain or alleviate limping. Although surgery to replace diseased hips in dogs has been successful for several years, such an option hasn’t existed for elbow joints.

James (Jimi) Cook, MU DVM ‘94, PhD, associate professor of veterinary medicine, William C. Allen Distinguished Faculty Scholar, and director of the University of Missouri Comparative Orthopaedics Laboratory (COL), has published scientific work describing a new method of treating dogs who require total elbow replacement in their front legs.

Dr. Cook’s procedure is called the Cook-Lower Total Elbow Arthroplasty System, and is designed to be less invasive and allow more elbow movement than previous procedures.

The procedure uses guides and jigs to better align the replacement mechanical plastic and metal elbow joint to the humerus bone and the radius and ulna bones. The technique mirrors those recently introduced in human hip and knee replacement surgery.

Elbow problems are particularly troublesome for dogs as they bear a greater percentage of their weight on their front legs compared to their hind legs.

Typically, dogs need total elbow replacement (TER) due to badly healed fractures, end stage degenerative osteoarthritis, or chronic elbow dislocations. Generally, large breed dogs such as Labrador retrievers, rottweilers, and German shepherds are more susceptible to front leg arthritis and trauma problems.

Until recently, the veterinary surgeon’s primary option to treat these common endstage elbow problems was arthrodesis—the mechanical fusion of the elbow. This common salvage option results in a pain-free limb, but significantly alters the patient’s gait. In addition, the failure rate for this procedure is high with about one-fourth of these surgeries ending in an unsatisfactory result.

The elbow joint is a much more difficult joint to replace than the hip. There are three joint surfaces that come together in the elbow whereas there are only two in the hip. Additionally, it is more difficult to reproduce the normal motion of the elbow than the hip. Surgically, adequate exposure of the elbow is more difficult than the hip, and surgical times are likely to be longer.

Dr. Cook’s elbow replacement surgery involves removal of diseased joint surfaces which are then replaced with a cobalt chrome humeral component and a high-density polyethylene (plastic) radio-ulnar component. The humeral component is stabilized by interdigitation with the bone and a screw which then allows bone in-growth and the radio-ulnar component is held in position with bone cement.

To maintain the original alignment of the humerus and radius and ulna bones, a jig is installed on both bones to mechanically keep each in the correct position.

Early results for the initial clinical trials at the MU Veterinary Medical Teaching Hospital have produced a 70 percent success rate with the new procedure with less healing time than other methods. Other TER systems for dogs have all shown higher than 50 percent failure rates.

Dr. Cook recommends two weeks of intense rehabilitation therapy and six weeks of restricted activity. COL plans to offer courses in the new technique to veterinary surgeons provided the long-term success rate of the initial clinical cases is repeatable.
Tom and Betty Scott of Mission Hills, Kan. and long-time supporters of the University of Missouri College of Veterinary Medicine, recently donated $2 million to the college to endow an unrestricted excellence fund.

The gift is the largest single donation received by the college.

“Tom and Betty Scott’s generous gift illustrates their enthusiasm for Mizzou,” said MU Chancellor Brady Deaton. “The Scotts’ gift will help improve the training of future veterinarians and the treatment of animals. We are very grateful for their generosity.”

“A gift like this shows tremendous faith in the leadership of the college and university,” said Dr. Cecil Moore, interim dean of the College of Veterinary Medicine. “It will clearly make a future difference by advancing the veterinary college to a new level and providing flexibility for the leadership of the college to address its greatest needs and opportunities and to develop strategic priorities. All of us in the university and veterinary communities are truly indebted to Tom and Betty for their generosity and desire to make a lasting difference.”

The Scotts are animal lovers and the proud owners of two toy poodles, Rags and Nicole. Mrs. Scott also is an avid horsewoman. Their involvement with the MU College of Veterinary Medicine began shortly after they were married and their basset hound, Smiley, received treatment for a broken vertebra. At that time there was little that could be done for dogs with back injuries, but the Scotts were so impressed with the care Smiley received and the kindness of the faculty that they promised to someday repay the college.

Beginning in the 1980s, they began to fulfill that pledge by giving $3,600, in memory of their toy poodle, Muffin, to buy the college a needed ultra-low temperature freezer. The Scotts continued to give to the college, equipping individual equine clinical stalls and helping build the new teaching hospital, Clydesdale Hall. In 1996, they pledged $550,000 to establish the Tom and Betty Scott Program in Veterinary Oncology, a gift that strengthened an emerging effort for veterinary and human medicine oncologists to collaborate on research. In 2006, funds from the Scott Program allowed the establishment of the Scott Cell Culture Laboratory for Comparative Oncology Research, a laboratory designed to speed the culturing of cells from tumors, which allows for faster and more accurate diagnosis of many cancers and aids researchers in learning how these diseases spread.

“We trust this commitment fulfills the promise we made to Smiley and the College of Veterinary Medicine many years ago,” said Mr. Scott. “We’re happy to have this opportunity to honor our beloved dog by helping other animals.”

Mr. Scott attended MU on a football scholarship and graduated in 1958 with a bachelor’s degree in business. After graduation, he began a career in insurance that lasted more than 40 years. During his career, he developed a group of companies that operated as the Insurance Management Corporation, one of the top insurance and risk management firms in the US, and he received national recognition in the areas of long-haul trucking and childcare insurance. His company merged with Arthur J. Gallagher & Company in 1996, and Mr. Scott retired in 1998.

Mrs. Scott enjoyed a successful career in business management after attending the MU School of Nursing from 1956 to 1958. She and Mr. Scott met while studying at Mizzou and were married three months after Mr. Scott’s graduation.

The gift is part of the For All We Call Mizzou campaign that has a goal of raising $1 billion by December 2008. Reaching this goal will enhance MU’s ability to compete nationally and internationally for the best students and faculty and will provide broad access for students of all economic backgrounds to Missouri’s flagship University. The campaign has raised $752.2 million, which is more than 75 percent of the $1 billion goal.

For more information about the College of Veterinary Medicine's For All We Call Mizzou program see their web page at: www.cvm.missouri.edu/giving/
Following the Civil War, drovers brought cattle overland to the railhead towns of Kansas for rail shipment to the market center in Kansas City. Many of the famous Texas cattle drives ended at the Kansas City railhead—where the KC Stock Yards would soon be built. Courtesy of the Kansas State Historical Society.

The Kansas City Stock Yards and The Kansas City Stock Yards Horse and Mule Market (insert in lower right corner) were located 'on Kansas soil lying between the Kansas River and the State Line, on the south of the Union Pacific and Missouri Pacific tracks at the east end of the Kansas River bridges.' Courtesy of the Kansas City, Kan., Public Library.

The Kansas City Bottoms, the confluence of the Missouri and Kaw (now Kansas) Rivers, was the agricultural industry's heart of the city in the early 20th Century. Cattle pens covered acres of ground, giving the stockyards the ability to handle thousands of animals at any one time. Dominating the skyline of the area was the Live Stock Exchange Building. Courtesy Kansas City, Mo. Public Library.

Kansas City's Stock Yards Were an Economic Colossus That Controlled Disease and Beat the Drovers and Railroads

hough a dramatic subject for Hollywood movies, the great Texas-to-Kansas cowboy cattle drives made for expensive steaks. Drovers would buy a two-year-old Texas steer for $8.70 and sell it in Kansas for $23.32—a 268 percent markup. A sickly cow could sell for $150 in the California mining camps.

Things changed after the Civil War when the railroads began shipping cattle by the thousands into the Midwest. The value of local herds plunged, and the railroad men didn't know, or care, about communicable diseases like Texas tick fever or Foot and Mouth disease. Filling cattle cars made their profit.

Bitter opposition by Missouri farmers afraid of imported diseases came to an ugly head. In 1866 when 260,000 cows—some infected with tick fever—flooded into the Sedalia railroad yard, farmers responded with rifles and stampeded herds. Similar conflicts occurred in Boonville, Lexington, and Independence.

Legislators, veterinarians, and businessmen wanted an alternative to this chaos. They influenced something unique—a centralized live stock market where farmers could bring cattle to be quarantined, inspected, and sold to the highest bidder.

From its establishment in 1871 until 1991 when it closed, the Kansas City Stock Yards would grow into a major economic engine. It was a city unto itself—a cow town—with banks, telegraph offices, hotels, firehouses, and financial center, surrounded by acres upon acres of animal pens and houses.

It was a high-tech endeavor, too, with concrete hog housing, elevated cattle chutes for fast transit, veterinary inspection stations, quarantine areas, water hoses for cleaning, wooden floors, quality feed, a sewage treatment system, and covered holding areas.

What started in the willow flats at the Kaw and Missouri Rivers’ confluence became an economic colossus. How big? The value of the nearby packinghouse products alone in 1900 was greater than seventy-three million dollars—more than all metro KC manufactured products. In 1909, 10,650 employees were on the payrolls, receiving wages of $6,693,269—an average of $557 each. During World War II, the dollar volume of livestock sales alone ran $350 million a year.

A Modest Start

The KC Stock Yards started six years after Gen. Robert E. Lee’s surrender with five fenced-off acres, 11 pens, five unloading chutes, and one small wagon scale.

By 1883, acreage had increased to 130—two-thirds in Kansas and one-third in Missouri. Yards were floored with 3-inch cypress plank and had a daily capacity of 20,000 cattle, 35,000 hogs, and 15,000 sheep.

In 1923, 2,631,808 cattle were received. Of these, 1,194,527 were purchased by local packinghouses. In that heyday year, the yards also accepted 2,736,174 hogs, 377,038 calves, 1,165,606 sheep, and 42,987 horses and mules.

“The yards are probably the best equipped in the world,” bragged The Kansas City, Kan. Newspaper, in 1924. “They contain 238 acres, of which 175 acres are paved and 87 acres under cover.” For almost 120 years, it was considered the world’s second largest facility—beaten only by Chicago’s Union Stock Yard made famous by Walt Whitman’s poem.

One of Best in the World

Several factors made KC a great market, says Margaret Landis, a Kansas City historian. There were sixteen railroads switching directly to the yards. Vast cattle ranges were just to the West and Southwest. Adjacent corn-producing states provided feed. KC hosted numerous packinghouses, and there were beef-hungry consumers to the East.

And the Kansas City Stock Yards Company didn’t gouge seller or buyer. Hay was sold to cattlemen at a reasonable $1 per hun-
dred-weight. The charge for yardage on cattle was 20 cents a head, and there was no yardage charge for cattle not sold. The commission men charged only 50 cents a head for selling cattle and $6 a car for hogs and sheep. And sellers were paid in cold cash. “The Stock Yards Company guaranteed prompt settlement of all sales of stock that were sent here,” The Kansan reported.

Center of Trade, The Live Stock Exchange Building

Business was conducted properly in The Live Stock Exchange Building, built in 1876, costing $35,000, and “fitted-up with every modern convenience.” Offices were rented to commission merchants and livestock men, the Bank of Kansas City, and the Merchants National Bank. It was considered the largest livestock building in the world and featured its own billiard room.

Though commerce was mainly in beef and pork, the Exchange was also considered the nation’s leading horse and mule market. It was a cosmopolitan place, too: “The East generally takes fine drivers and riders; the South mostly mules for cotton work, although some very fine horses are also taken; for the West and Northwest, mostly heavy draft animals,” the local newspaper reported.

The structure was badly damaged in the 1903 and 1908 floods. It was razed and a concrete three-story hog and sheep house (four blocks long and a block wide) was built on the site.

In these floods, cattle and hogs were driven into the elevated runways over the yards, and even into the upper floors of the Exchange building. Here they were kept and fed until the waters subsided.

A nine-story Exchange was built in 1910 that still stands. This facility had 475 offices that housed the Kansas City Stock Yards company, telegraph offices, commission firms, traders, restaurants, banks, railroad offices, packing house buyers, a radio station, hay dealers, barber and beauty shops, and various other interests.

That building was almost lost in October 1917 when 25 acres of wooden cattle pens and 12,000 animals were destroyed by fire. The Hartford Insurance Company fully covered the almost two million-dollar livestock loss.

Decline of the Packinghouses

In its glory days, the KC yards was home to 23 packinghouses, including Armour and Company, Western Dressed Beef Co., Allcutt Packing Co., Kingan Packing Co., Swift and Co., Wilson and Company, Holmes Packing Plant, and Jacob Dold and Son. Packinghouse buyers purchased the fat stock. Local farmers bought thinner and younger “stockers and feeders” to fatten them.

Slaughterhouses thrived during World War II as millions of cattle were marched into the plants, then shipped overseas in cans.

Post-war business boomed as prosperous Americans consumed more meat. Things changed, however, during the disastrous summer flood of ’51 that covered Kansas City’s Bottoms in 15 feet of river water. That flood killed 28 people and caused almost a billion pre-inflationary dollars in damage. Photos of bloated cows drifting downriver were front-page news. When the waters receded, only a handful of slaughterhouses shoveled out the gooey river mud and reopened. The once-first-class yard facilities were repaired, not replaced.

Advances in practical refrigeration allowed for slaughter near feedlots—it being cheaper to ship packaged beef than whole live animals. Local butchering and meatpacking still continued at the yard, but on a smaller scale.

In the 1960s, a fat-fed fire spectacularly burned the five-story Swift packing plant to the ground. It was not rebuilt. The industry was consolidating into three huge stockyards in the west.

The end came in September 1991 when the last cattle auction was held. Rising costs of water, sewage disposal, taxes, and the problems of moving cattle through an urban area finally did the KC Stock Yards in.

The closure ended Kansas City’s experience as a host to a cow town. Today, the pens and corrals are gone and the land vacant. Only the Exchange building and silhouette statues of some cows galloping over a hill and home to Texas remain.
The University of Missouri College of Veterinary Medicine 2006 graduation was an emotional time for everyone receiving degrees and certificates. It was particularly moving for Long Tran. He was a licensed veterinarian again.

Dr. Tran’s veterinary degree was earned in his home country of Vietnam. When he immigrated to the US in 2000, those medical privileges were lost as the US does not automatically recognize that country’s professional degrees.

Unable to practice his chosen profession, Dr. Tran accepted a slew of entry-level jobs in his adopted city of Sioux City, Iowa to build up enough funds to attend MU’s Evaluated Clinical Experience for Foreign Veterinary Graduates program. This 6-week surgical laboratory and 12-month clinical training program fulfills the American Veterinary Medical Association’s US certification requirements for foreign graduates.

For five years, Dr. Tran toiled in Sioux City doing many of the jobs other people avoid. He started as a Sioux City Journal newspaper carrier, walking the daily route because he couldn’t afford a bicycle. That led to a downtown job polishing shoes, followed by a short-order cook gig in a riverboat casino. Things began to look up when he graduated to the blackjack table as a dealer.

“I was a doctor before, I feel like my ego is hurt” Dr. Tran told his old newspaper in feature story after his US certification. “I used to have my degree (in Vietnam). Look what happened after. Now I come here, and I have to start over cleaning shoes.”

Salary and tips were carefully hoarded in anticipation of entering the MU foreign graduate program. Finally, he made the trip south to central Missouri.

Dr. Tran didn’t initially intend to become an American. He didn’t realize that he was leaving his native country for good when he accepted a fellowship to study veterinary medicine in France.

He became disillusioned with the European nation’s treatment of Asians and other minorities. But as his eyes opened to the positive aspects of Western culture, he wondered what life was like in the US. He came here on a tourist visa.

Carrying a backpack and a little money, he first visited California. There, an old friend of his father tried to fix Dr. Tran up with a Vietnamese woman living in Iowa. “He told me, ‘I have a good girl. She is Vietnamese. You may meet her.’”

Dr. Tran took up the offer and met Jackie Nguyen, the daughter of a political refugee. Soon, the couple were married and had two daughters, Ann, now four, and Lina, almost a year. Through
the marriage, Dr. Tran became a legal immigrant.

The part-time and entry-level jobs that Dr. Tran had to take were not meeting the burgeoning family’s financial needs. Dr. Tran decided to go back to his old profession.

That road back proved to be tough. His command of English was poor. In fact, he barely knew more than a few words of the language.

Dr. Tran wasn’t afraid to ask for help and got it. Employees of the local public library helped him find Vietnamese-English language books. Later, they would obtain American veterinary medical textbooks that Dr. Tran couldn’t afford to buy.

A local ophthalmologist helped, too, introducing Dr. Tran to area veterinarians who agreed to act as language and veterinary coaches. “You know,” Dr. Tran said, “many people will help you when you ask for help. You have to show you are a hard worker and you have something so they will try to help you.”

Even with the help, Dr. Tran fell short of AVMA English requirements. So, he studied at the May J. Treglia Community House to learn beginning English. That led to the Western Iowa Tech Community College for English As a Second Language courses. Dr. Tran’s thick accent held him back, so he hired a speech therapist to help with articulation and pronunciation skills.

He was juggling multiple lives simultaneously—entry-level worker, father and husband, and veterinary and English student. Finally, the savings, language skills, and opportunity came together and Dr. Tran headed south to Columbia, Mo. and the University of Missouri.

A ‘New’ Veterinary Degree

MU’s foreign graduate program students join American senior students on clinical rotations. Both groups are given the same instruction and assigned the same responsibilities, including emergency and intensive care duties.

The program’s objectives are to provide a broad range of practical clinical experiences in small animal, food animal, equine, and diagnostic medicine; improve upon previously acquired academic knowledge, diagnostic ability, and surgical skills; and to aid in developing a team approach to problem-solving and improved client relations.

Foreign-trained students are evaluated by the same criteria used for American veterinary medical students and face the same licensing requirements.

Dr. Tran enjoyed his Missouri training and learned skills and techniques not available in his native Vietnam. The ready access to a range of pharmaceuticals was mind boggling, as was the variety of specialty treatments in oncology, surgery, and preventive medicine. In his home country, veterinary medicine is rarely practiced on cats and dogs—that valuable resource being saved for the economically important food animals.

The 36-year-old Dr. Tran also appreciated the camaraderie and fun of being a student again. His classmates helped him with English skills, including American slang, as well as technical jargon of the profession.

While Dr. Tran studied in Columbia, Mo., his wife and two daughters lived in a modest home in north Sioux City. Jackie earned income as an accountant. While Dr. Tran traveled back to Sioux City every two or three weeks to visit his family, he never lost sight of his goal to reunite them all under one roof.

A Veterinarian Again

Like the MU 2006 graduates, Dr. Tran had several job offers. He selected a position as an associate veterinarian at Banfield, The Pet Hospital, in Las Vegas. This city, he noted, has a Vietnamese community 20,000 strong. “A perfect fit,” he said.

“I am an American citizen now,” he continued. “But when I came here I had nothing. And now I have many things. I am very happy. I owe this country a lot.”

“I was a doctor before, I feel like my ego is hurt.” I used to have my degree (in Vietnam). Look what happened after. Now I come here, and I have to start over cleaning shoes.”
Growing up on a dairy farm outside Springfield, Mo., Dennis Schmitt, MU DVM ’78, didn’t envision that we would someday be Chair of Veterinary Services and Research for Ringling Bros. and Barnum & Bailey. He also never expected to be one of the world’s leading specialists in elephant theriogenology, with stories about his work appearing in medical journals, the Associated Press, major newspapers and TV programs, and the tony Salon.com.

But the elephant is not reproducing in sufficient numbers to ensure their survivability and Dr. Schmitt’s research into their unique reproduction is one of the few bright spots in species’ long-term survival. Dr. Schmitt has flown all over the globe to circuses and zoos, often cradling a container of elephant semen in his lap, to help bring 300-lb. bundles of joy into the world.

And, so far, he has seen the successful birth of 14 infants. The first baby, an Asian named Haji, was born after the mother’s 674-day pregnancy at the Springfield Dickerson Park Zoo. That birth proved that Dr. Schmitt’s research into Artificial Insemination (AI) is a practical tool to help save the species.

And there may be little time to lose in this effort. Elephants are facing numerous problems reproducing, partly because there aren’t many of the creatures left on the planet. Most Asian elephants are past their reproductive age, so accelerating their birthrate is especially important.

Traditionally, zoos have had little success in breeding elephants, often because they’re not equipped to house the aggressive adult males. And transporting such six-ton animals is difficult and expensive. Dr. Schmitt and his team have found success using artificial insemination and employing ultrasound to determine the females’ reproductive cycles. The group is currently working on freezing elephant semen for transport.

So what is the state of the elephant species from someone on the front lines of the fight to save them?

Elephants Are Not Reproducing Fast Enough. What Are Their Long-Term Survivability Prospects As Seen By Someone On the Forefront of Saving Them?

Q: Is the elephant becoming more endangered, holding it’s own, or improving?

Dr. Schmitt: The Asian elephant is becoming increasingly endangered, as its habitat is further fragmented by human activities (deforestation for farming, palm oil plantations, etc.) in the elephant’s home range. Asian elephant total
numbers are estimated at 35-50,000; of this about one-third are captive elephants. Most captive elephants are in range countries (SE Asia). With increased fragmentation of the Asian elephant’s habitat, the Asian elephant becomes more vulnerable and increases the chances that it will need to be captured because of human-elephant conflict. Long-term management of Asian elephants must include free-ranging as well as captive elephants, as there is no clear separation of the populations in most range countries.

The African elephant, while not endangered to the Asian elephant level, is estimated to be about 300-500,000 individuals—down from much higher numbers is the past 50 years, with only about 1,000 in captivity worldwide. Because many African elephants are living in savannahs and are highly visible for tourists, scientific study, and poachers, they are highly vulnerable in several African countries. However, in some Mega parks and countries, the African elephant is reproducing and numbers are increasing to the extent that population control measures are being considered.

There are other countries where poaching for the valuable ivory and meat threaten the elephant population. This results in African elephants being considered Cites I (endangered) in most African countries and as Cites II (Vulnerable) in five countries in southern Africa. Because both sexes have tusks, both male and female African elephants may be hunted for their ivory. In addition, countries which have done a good job in controlling poaching have stores of ivory from elephants that died naturally, that could be used in a legal market to support conservation efforts in their country. This brings many conservationists, and elephant management agencies into conflict regarding elephant management for long-term survival of the African elephant in free-ranging conditions.

Q: Are there recent or “on-the-horizon” scientific or technical artificial insemination advances that you think are significant?

DS: Our current understanding of the estrous cycle of the elephant has helped in reproductive management of elephants in general, and certainly in providing the opportunity to be successful with. There is still much we don’t understand about the reproductive physiology of elephants. Elephants appear to be unique with two LH peaks about 21 days apart during one estrous cycle. Why this has evolved is not clearly understood, though we are able to use the information to accurately time breeding. The most current advance artificial inseminations advance is the use of Canine LH test strips, which are useful for cowside determination of the ovulatory LH peak in elephants (and a few other species) with results available in 20 minutes. This provides accuracy in determining ovulation to improve the success of AI in elephants.

The next level of AI success will depend on the development of successful cryopreservation of semen. While some species have been very successfully frozen, elephants are not one of them. Successful cryopreservation of elephant semen will provide a reliable source of semen on the day(s) needed for successful AI and perhaps in the future provide sex-sorted samples to reduce the number of males born in captivity. However, sex-sorted semen will have limited applications in the captive elephant population.

Q: You developed many of the first successful AI techniques in elephants. Is this branch of theriogenology becoming more accepted and widespread (and is this having a positive effect on the elephant population)?

DS: I am one member of several groups working on AI in elephants. I was fortunate enough to be involved in most of the successful AI attempts. We are still working on several areas that need improvement and more trained theriogenologists are becoming involved in the various aspects of elephant reproduction.

One of the problems is that many people believe that all challenges have been solved. They assume that semen is available on demand. While one of the greatest challenges is that we have very few reliable semen donors, and too often, when semen is needed over a two to three day estrus, fresh semen is not available. For successful AI we need to determine the exact timing of ovulation (which is now possible) and deliver semen to the reproductive tract.

To date, all successful AI’s have used fresh cooled semen, shipped for same day delivery for insemination. Many facilities considering AI in elephants are not aware of the training and logistics needed in their cow and for semen collection at another facility, in order to have a successful AI. The reality is that worldwide there have been only 16 successful AI’s. That is not nearly enough to help sustain a captive population in North America and Europe, even in addition to natural breeding. An increased focus on reproductive efficiency in elephants is needed in most countries, and in a few with overpopulation of elephants in managed game parks, some methods of birth control need to be utilized for elephants to continue being the charismatic megavertebrates they are. The future management of elephants depends on land and people management more than elephant management, but an understanding of elephant reproduction is making a difference.

Q: You’ve traveled the globe to help repopulate the species. Any one case that you are the most proud of?

DS: Actually, the one I am most proud of is the one closest to home. The first pregnancy and birth from artificial insemination occurred here in Springfield, Mo. This event demonstrated that AI was a tool that could be used in elephants. The number of artificial procedures increased worldwide since that time, with successful AI’s occurring in Europe, China, and Thailand, by groups using the same technology demonstrated to work here in Missouri.

Q: Any cases that made you think that you should have stayed on the farm?

DS: As in domestic animals, dystocia in elephants can be the most frustrating.

After several years are spent planning conception, and then waiting about twenty-two months for gestation, the last few days and moments left very few options for intervention. A caesarian section in an elephant is one of the most difficult surgeries in which I have ever been involved. This fetus had one hind leg retained in the abdomen in a posterior presentation. A vesicolotomy was not successful in correcting the malposition, and we elected to perform a caesarian section.

Little about elephants is easy, and the c-section was successful, but due to circumstances the cow had to be euthanized after removal of the fetus and most of the uterus closed. No caesarian sections have been successful to date in elephants. But, contrary to our veterinary experience in other species, elephants not only often survive with a retained fetus, several have re-absorbed the fetus or expelled it several months later and subsequently became pregnant. This still amazes me.
Nomadic Kuchi tribal families migrate seasonally in familiar regions, often crossing the Afghanistan-Pakistan border. A Kuchi family’s herd of camels and donkeys carry the burden of their belongings, and supplement the number of milk cows, herds of small ruminants, and dogs. Department of Defense photo by Sgt. Michael Abney.


Somewhere in Time
US Army Veterinarian Helps Make Ancient Afghanistan Healthier

While much of the fighting against the roots of global terrorism in Afghanistan involves the tools of modern war, one front is less visible—the rebuilding of the country’s agricultural infrastructure.

Aiding in this part of the war are a handful of US Army veterinarians. Shortly after the country was liberated from the Taliban, these 21st Century officers arrived to help revive the country’s rural animal agriculture that has changed little since the Eleventh Century.

Where developed countries have large and efficient cattle ranches and mechanized agriculture, rural Afghanistan agriculture still relies on cattle and donkeys for the cultivation and harvesting of crops. A rural family’s wealth is often reflected by its livestock herd, which may range from less than ten to many as a hundred. Additionally, ownership of camels and horses reflect even greater affluence.

Since his graduation from the University of Missouri College of Veterinary Medicine in 1982, Army Lt. Col. Mark Martinez, also a boarded pathologist, has made it his mission to use modern techniques to prevent and treat animal and zoonotic diseases. A veteran of the Persian Gulf War and other military deployments in the Middle East, he found himself back in time in the timeless Muslim culture of Afghanistan.

Helping Some of the Poorest People on Earth

Afghanistan is largely an arid, rugged, mountainous, and landlocked country with poor water and sanitation, little electricity, and poor communication and roads. Villages have been little influenced
by the outside world and have retained ancient ways for generations. The country’s living standards are among the lowest in the world.

During his one-year deployment to Afghanistan, Dr. Martinez was assigned to a unique medical assistance team comprising veterinarians and physicians supporting civil military operations.

The veterinary mission was two-fold: First was to tactically provide basic veterinary humanitarian assistance in the form of preventive and therapeutic veterinary medicine in the most rural areas of southern and eastern Afghanistan. The second component was strategic, and included national-level involvement with the nation rebuilding efforts of the US Agency for International Development (USAID) and other international donors.

One of USAID’s major rebuilding efforts concentrated on animal and crop agriculture. The USAID-sponsored Rebuilding Agricultural Markets Program (RAMP) utilized a variety of subject matter experts, such as veterinarians and agriculturalists from the USDA, and worked with Afghans and nongovernmental organization partners such as the Dutch Committee for Afghanistan.

Assigned to the Cooperative Medical Assistance (CMA) team based at Bagram Airfield, Dr. Martinez and his team were tasked with healing the ill animals in small Afghan villages. Without these precious animals many of these Afghan families might starve.

“The veterinary component of the CMA mission routinely treats several hundred head of livestock per mission day,” he said. “This can range up to well over one thousand animals per day in certain areas, for example, when tending to the Kuchi livestock.

“We do our work primarily in areas where there are no veterinary services,” Dr. Martinez continued. “Afghans, both villagers and Kuchi nomads, are very grateful for the veterinary care we provide.”

Old-Fashioned Medicine in an Ancient Land

There were few cutting edge or high tech aspects about the work that Dr. Martinez and his colleagues performed in the country. In fact, his work was somewhat reminiscent of generations of veterinarians before him—more out of the Old West than current Western civilization.

Dr. Martinez encountered familiar and old animal diseases—anthrax, Pasteurellosis, enterotoxemia, tetanus, avian influenza, tuberculosis, brucellosis, and rabies, as well as some “foreign” animal diseases that he had learned about through the USDA Foreign Animal Disease Diagnostician Course at Plum Island, NY. Diseases such as peste de petits ruminants, sheep/goat pox, and foot and mouth disease. The lion’s share of his work involved immunizing and de-worming herds of varied size. Small ruminants (sheep and goats), cattle, donkeys, camels, horses, and dogs were his usual patients.

Dr. Martinez and other veterinarians also worked with herdsman, advising them on ways to improve the livestock’s health and productivity. Diseases caused by infectious agents, parasites, and poor nutrition are the most significant obstacles to establishing and maintaining acceptable levels of livestock.

Veterinary care and advice was also directed at the country’s work animals. In a country where mechanized farm vehicles are expensive and rare, these animals are still the most common way used to plow fields and transport harvested crops to local markets. Traveling by donkey or horseback is common. Nomadic Kuchi tribal families rely on their herds of donkeys and camels to carry their modest belongings around the region, as did their ancestors.

“A vast majority of rural Afghans, 80 to 85 percent, depend on livestock in some fashion for their economic livelihood,” said Dr. Martinez.

In Dr. Martinez’s area of operations, the big plan was to establish private-sector veterinary services available to farmers-making the country’s agriculture more efficient and reliable. That, perhaps, will help bring the country a little closer to the modern day.

Although walking is far more common, rural Afghans also rely on donkeys and camels for travel. One goal of the Ministry of Public Health in 2005 was to establish basic health clinics within a 4-hour walk of all rural Afghans. Photo by Lt. Col. Mike Lennon, US Army.

Lt. Col. Martinez holds a young cow while a provincial veterinarian uses a multi-dose de-worming gun. One of the goals of the routine de-worming and immunization effort was to educate livestock owners about the benefits of herd health medicine so that they would independently seek out such routine veterinary services. Photo by Maj. Jeff Blankenship, US Army.

Photo by Lt. Col. (Dr.) Mark J. Martinez shows an Afghan veterinarian, at the site of a future Afghan government veterinarian clinic, what medication he uses on large farm animals. US Army photo by Sgt. Matthew MacRoberts
Urban Rescue

Ed Migneco Helps Salvage the Unwanted Street Animals of St. Louis

When the St. Louis Riverfront Times selected Ed Migneco, MU DVM ’86, the Best Veterinarian, the newspaper didn’t cite the usual platitudes of caring and compassion. Editors described how he slid a muzzle on a snarling and injured Rottweiler who was apparently trained as an attack dog by a drug dealer.

It wasn’t the first time that the veterinarian had faced such a task. As a volunteer for Stay Rescue of St. Louis, a group dedicated to saving the most dangerous and hurt abandoned urban animals, Dr. Ed, as he nicknamed, has confronted his share of dangerous situations.

The massive Rottweiler was in a lot of pain. He had apparently displeased his owner—the dog had been found on the street with four broken legs, a cut throat, and sliced ears. He hunched forward on his shoulders in an attempt to take weight off his injured back. Every move the Rottweiler made caused him to bark in pain.

Dr. Ed’s wife, Mary, and their three daughters expected him home for dinner. Rather than enjoying pot roast and potatoes, Dr. Ed was trying to inject a healthy dose of sedative and painkiller into the Rottweiler—enough so that the dog could be safely transported to his clinic, Hillside (formerly City) Animal Hospital.

The dog has already bitten several people in the rescue team. As the drugs slowed the animal’s reactions, Dr. Ed slowly moved a nylon lead, folded into a small noose, near the dog’s mouth. At each approach, the Rottweiler’s head came up, but a shot of pain sent it yelping back to the floor.

It took 20 minutes to muzzle the Rottweiler.

Helping Urban Animals Since 1986

St. Louis recently had the dubious distinction of being named the most crime-ridden US city. Animals are caught up in this violence and drug addiction. Like the Rottweiler, some are trained as adjuncts to guns and knives, while others are everyday pets who are abused or abandoned.

From the beginning of his professional career, Dr. Ed saw how desperately the city’s nonprofit groups needed help. “I just couldn’t say no,” he said. When he bought the City Animal Hospital from Dr. Norbert Schmelzer in 1986, Dr. Ed immediately made a point of treating abandoned animals.

In their story, the Riverfront Times quoted Fran Vinnacombe who started trapping feral cats in St. Louis city years ago, but couldn’t find a local vet to spay or neuter them. “He deals with feral animals, whereas a lot of other vets won’t,” Vinnacombe said. “He’s wonderful. He’s my hero.”

Michael Mullen of Pets Are Wonderful Support (PAWS) said his group couldn’t work their own wonders without Dr. Ed’s help. PAWS provides, in part, veterinary care for people who have HIV or AIDS. PAWS today handles about 300 pets, but 10 years ago, when the group was created and Mr. Mullen solicited veterinarians for discounted care, Dr. Migneco came forward immediately.
Conner lived as a stray in Washington Park. Even though limp and in a weakened condition, he managed to elude every attempt at rescue. Members of Stray Rescue saw him foraging through a burned-out garage. He initially managed to get away, but found no escape from a backyard fenced on four sides. Conner suffered from a severe case of malnutrition, mange, scabies, anemia, and yeast dermatitis that caused a thickening and scaling of the skin all over his body. He walked in a plantigrade stance due to weakness of his muscles and tendons. His feet were so badly swollen that he balanced like a gymnast on his tail and front legs during the car ride to Dr. Ed, thus his naming after a 1980’s gold-medal winning gymnast. Radiographs revealed that he had broken six out of his eight toes in his rear feet. After only a few weeks of treatment and regular feeding, Conner had recovered enough to be neutered and adopted.

“He’s devoted so much of his time and energy, it’s unbelievable,” Mr. Mullen said. “He gives us heavy discounts, he donates two full days a year for free vaccinations, and he’ll take animals in the middle of the night. He’s just done everything he possibly can.”

Stray Rescue of St. Louis is Dr. Ed’s largest pro bono client. Hundreds of their dogs have found their way to the Hillside Animal Hospital.

“He always says yes,” says Randy Grimm, executive director of Stray Rescue.

The non-profit Stray Rescue of St. Louis was founded in the late nineties by Mr. Grim who would see stray dogs, some in packs, pass by his Lafayette Square grooming shop. If these urban wild dogs didn’t die of starvation, he said, diseases such as parvovirus, heartworm, or intestinal parasites would kill them. Their average life span on the street is one to two years.

Stray Rescue is credited with saving about 5,000 feral dogs. Many have been turned into house pets and adopted by new families. Some have even gone on to become therapy animals, bringing joy to people in hospitals and nursing homes. An episode of Animal Planet’s “Wild Rescues” TV show featured one Stray Rescue case of a dilapidated and abandoned puppy mill in Cuba, Mo. There, due to the work of Mr. Grim, Dr. Ed, and several volunteers, 17 animals were saved.

Stay Rescue is an organization whose sole mission is to rescue stray animals in need of medical attention, restore them to health, and place them in loving adoptive homes. Stray Rescue’s foster network is the largest and most effective program of its kind in the St. Louis area.

Dr. Migneco’s work is to provide veterinary services when needed and to help in an animal recovery when conventional means are not enough. He has helped with about a thousand of Stay Rescue’s cases.

The Rottweiler’s Case

Stray Rescue was the organization that called with the Rottweiler case. That dog, once at the clinic, appeared unsalvageable. Spinal discs were compressed and others had large gaps. All four limbs had evidence of old fractures. If the orthopedic injuries were not enough, the dog also had a condition called cervical spondylomyelopathy (the wobbler syndrome), which would require specialized surgery with no guarantee of success, a long recovery, and an even longer period of physical therapy.

Because the dog has a history of attacking people, physical therapy didn’t seem possible. The dog could never be trusted not to attack.

Dr. Ed and Mr. Grim pondered what to do. To this point, Stray Rescue had never euthanized a rescued dog. While it wasn’t the dog’s fault that he had been beaten and dumped on the street, odds of a successful surgery were slim.

Dr. Ed made the difficult decision for Mr. Grim. Soon, another stray urban animal would require the pair’s attention.
Dr. James E. Nave Donates $1 Million Towards the Renovation of the Veterinary Medicine Building

James E. Nave, a practicing veterinarian from Las Vegas and 1968 graduate of the University of Missouri College of Veterinary Medicine, recently pledged $1 million toward the renovation of the College’s Veterinary Medicine Building.

The gift is a significant contribution to the $5 million-plus project that involves revitalizing the Zalk Veterinary Medical Library, enlarging classroom space, and shifting the main entrance of the Veterinary Medicine Building from its current location to one facing Campus Drive. In addition, these enhancements will contribute to the broader goal of creating a more unified campus effect and a more inviting and user-friendly facility for visitors.

Dr. Nave is a native of Protem, Mo. He joined the US Army after graduation from veterinary school and was awarded the Bronze Star for his military service in Vietnam. Dr. Nave served as a captain until his discharge in 1971 and then settled in Las Vegas. He opened the Tropicana Animal Hospital in 1974 and has owned and managed multiple veterinary hospitals in the area since that time.

Dr. Nave has been active in organized veterinary medicine at both the state and national level throughout his career. He is past president of the Nevada Veterinary Medical Association and served four years on the Nevada Board of Veterinary Medical Examiners. As president of the American Veterinary Medical Association (AVMA), he was instrumental in bringing the national convention to its current high standards; worked to restructure the political process with associated redistricting of the Executive Board, played a key role in establishing a mentoring program for new graduates, emphasized the importance of sound business principles in the practice of veterinary medicine through establishment of the National Commission on Veterinary Economic Issues, encouraged globalization of the veterinary profession in education and licensing, and brought about changes to ensure a smooth transition between AVMA administrations.

Dr. Nave and Nevada Senator Harry Reid were instrumental in an effort to restore the general star to the leader of the US Army Veterinary Corps from the prior rank of colonel. President George Bush signed a defense authorization bill passed by Congress in 2003 containing a provision requiring that the rank be changed. About a year later, Dr. Nave attended the swearing-in ceremony of Dr. Michael Cates who became the 23rd chief of the Army Veterinary Corps. In keeping with a law passed by Congress, the colonel was promoted to the rank of brigadier general.

Dr. Nave presently chairs the AVMA’s National Commission on Veterinary Economic Issues and is that organization’s Globalization Liaison Agent for Education and Licensing. He is also a member of the Board of Directors for Station Casinos Inc., Western Alliance Bancorporation and Bank West of Nevada.

The Western Veterinary Conference dedicated its 75th Diamond Jubilee meeting in 2003 to Dr. Nave for his untiring devotion to his profession. He is credited with helping mold the conference into one of the world’s finest continuing education opportunities.

In addition to veterinary medical activities, he also has an interest in athletics. Dr. Nave was a member and chairman of the Nevada Athletic Commission for 12 years, and was the sole commissioner to vote against Mike Tyson’s reinstatement in the late 1990’s. He was the North American Boxing Federation’s 1990 Boxing Commissioner of the Year, and the World Boxing Council’s Boxing Commissioner of the Year in 1992, 1993, 1996, 1997, and 1998.

Dr. Nave was named Nevada Veterinarian of the Year in 1988 by the Nevada Veterinary Medical Association. He was the University of Missouri College of Veterinary Medicine’s Alumnus of the Year in 1987 and earned the University of Missouri’s Faculty-Alumni Award in 2001.
Richard Meadows, DVM and clinical associate professor of veterinary medicine at the University of Missouri College of Veterinary Medicine, recently received one of veterinary medicine’s highest honors, the 2006 Bustad Companion Animal Veterinarian of the Year Award.

The award recognizes the outstanding work of veterinarians in protecting and promoting the human-animal bond. The award is named for the late Dr. Leo K. Bustad, former president of the Delta Society, dean of the Washington State University College of Veterinary Medicine, and a pioneer in recognizing the importance of the human-animal bond. The award is sponsored by the American Veterinary Medical Association, Delta Society, and Hill’s Pet Nutrition, Inc.

“Dr. Meadows is the consummate clinical educator who has a deep understanding of the important relationships between people and animals and works tirelessly to impart this understanding to his students,” said Dr. Cecil Moore, interim dean of the college. “We are proud to count him as one of our outstanding faculty members and we are extremely pleased that he has received this well-deserved national recognition.”

Dr. Meadows is also the faculty advisor for MU’s Pet Assisted Love and Support (PALS), students and their pets who visit children’s hospitals, retirement homes and other areas where the emotional well-being of people are enhanced by interacting with animals. Dr. Meadows has also conducted research into therapeutic benefits of the human-animal bond. He is American Board of Veterinary Practitioners board-certified.

Dr. Meadows earned a bachelor’s degree in chemistry from West Texas State University in 1977 and a bachelor’s degree in veterinary science from Texas A&M in 1980. He obtained his DVM degree from Texas A&M in 1981. Since arriving at MU in 1999, he has received the Norden Distinguished Teacher Award, the Aesculapius Teaching Award, and the Golden Chalk Award.

There have been 20 Bustad winners since 1986 when the award was first given.

The award is not the first for Dr. Meadows. He was among 10 MU educators who won the 2005 William T. Kemper Fellowships for Teaching Excellence. Like the Bustad Award, Dr. Meadows had been secretly nominated by students and colleagues.

Dr. Meadows has a “passion for teaching,” says his Kemper citation. He devotes 85 percent of his efforts to clinical teaching, and students identify him as “one of the best teachers in the college.” One student said: “His enthusiasm is contagious and his sense of humor and light-heartedness uplifting.” Colleagues noted “his obvious love of veterinary medicine as a profession and deep commitment to molding his young colleagues.”

Although he considers teaching to be his primary responsibility at MU, Dr. Meadows also actively seeks funding to enhance the College’s teaching facilities and technologies. He has received more than $552,000 in grants that have been used for a variety of projects including the purchase of specialized equipment for veterinary dentistry instruction and the remodeling and expansion of Clydesdale Hall, the veterinary medical teaching hospital.
Sorry Rover, This Clinic Is Feline-Exclusive

It’s not exactly that dogs aren’t allowed, but the name of the clinic should provide a clue as to the preferred clientele—A. Cat Clinic.

Dr. Denis Stuppy, MU DVM ’77, recently opened his feline-oriented clinic in Barnhart, Mo., south of St. Louis. Since graduation, he has maintained the health of a variety of animals, but now feels that he wants to specialize in one species.

“I appreciate their personalities, intelligence, and independence,” he told the St. Louis Journal-News newspaper. “It’s just something that I have developed over time.”

There are several advantages to keeping barking Rover outside, he reports. The clinic lobby purrs with quiet serenity. Carpeting lasts a lot longer, too.

Cat-only clinics are a rarity with about 300 so designated in the US. This is not surprising, perhaps, since cats are America’s favorite pets. A recent survey by the American Pet Products Manufacturers Association shows that there are 90 million companion cats compared to 73 million dogs.

Dr. Stuppy said that cat owners prefer a practice that specializes in the special needs of felines such as upper respiratory viruses, cat bites, and abscesses associated with cat bites. As cats are living indoors and enjoying longer lives, urinary problems of aging cats is a growing problem. Clients prefer expert help in kitten litter training, too.

Not surprisingly, Dr. Stuppy has cats of his own—five at last count.

And what about the A. part of the clinic name? “A stands for ailurophile,” he said. “That means cat lover.”

Snodgrass Recognized by Arizona Veterinary Association

Christopher Snodgrass, MU DVM ’75, was named Veterinarian of the Year by the Arizona Veterinary Medical Association.

His citation states that he was honored because of his excellence as a surgeon and communicator. The association also recognized his work in mentoring and encouraging young veterinarians and his staff.

Dr. Snodgrass is a partner in 13 animal hospitals and has served on the board of directors of the Emergency Animal Clinic for 20 years.

Born in Manhattan, Kan. into a family of veterinarians, he moved to Glendale, Az. in 1950.

MU Veterinarian Recognized In Cornell Press Release

The University of Missouri isn’t the only institution that issues press releases about its veterinarians. Eric Ledbetter, MU DVM ’01 and Cornell University ophthalmology resident, was highlighted in a summer 2006 media release in regard to a successful surgery to correct a potentially blinding eye injury on a one-eyed horse.

Dr. Ledbetter led the surgical team.

That case involved Bernie who was taken to a Maryland veterinarian for treatment of a little scratch on his left eye. His veterinarian prescribed ointment a few times per day and said he should be in good shape in about a week.

Four antibiotics later, and weeks of frustration by additional local veterinarians, including an internal medicine specialist, Bernie was transferred to Cornell’s Equine Hospital in Ithaca, N.Y. His condition was serious—especially since Bernie only had one eye, having lost the right eye years ago just after his racing career ended.

Under the care of Dr. Ledbetter, Bernie was found to have a very resistant corneal fungal infection. Bernie was treated medically for several days via a medicine delivery system that allows liquid medications to go directly onto Bernie’s eye. When the condition did not improve, Bernie had eye surgery under general anesthesia. Dr. Ledbetter and colleagues removed a deep “cone” of infection from Bernie’s eye and covered the surgery site with donor tissue from the pink tissue surrounding Bernie’s eye.

After eleven days at the hospital, Bernie’s aftercare at home included medication every six hours, stall rest, and several recheck exams at Cornell. His final recheck was in June and the prognosis is very good.

Melvin Gerstner Named to MU Jefferson Club Board of Trustees

MU alumnus Melvin Gerstner, DVM ’66, was recently named to the University of Missouri Jefferson Club Board of Trustees. Dr. Gerstner has been involved with the university in various capacities over the years and has agreed to serve a three-year term on the board.

He is the owner of Highland Park Animal Hospital in Pasadena, Calif. Dr. Gerstner also travels the world volunteering for a group called World Concern, an organization of professionals from many disciplines dedicated to helping the poorest families.

Leon Russell Receives AVMA’s 2006 President’s Award

Leon Russell, MU DVM ’56 and president of the World Veterinary Association, was presented the 2006 American Veterinary Medical Association’s 2006 President’s Award.

Dr. Russell has been active in organized veterinary medicine at all levels: local, state, national, and international. He has served as president of the Texas Veterinary Medical Association, and as a member of the executive board, board chair, and president of the American Veterinary Medical Association. Prior to his election as the first World Veterinary Medical Association president, he served as the organization’s vice president and council member.

Dr. Russell has received numerous honors and awards in recognition of his dedication and commitment to teaching, organized veterinary medicine, and public health. These include the Texas Veterinary Medical Association Faculty Achievement and Research Awards, and the Norden Distinguished Teaching Award.

His experience and expertise has resulted in his appointment and election to various national and international boards and committees, including those of the Department of Agriculture, Centers for Disease Control, and the Organizing Committee for the World Hygiene Congress.

He lives in College Station, Texas.
Harry J. Forrest, MU DVM ’54, died July 23, 2006 in Clinton, Iowa.

He was born Feb. 16, 1923, in Moberly, Mo., to Wallace and Nell Hutton Forrest. He served in the US Army Medical Corps during World War II, stationed at the Schick Hospital, Clinton, and in European and Pacific theaters.

He married Doris Jебson in Sept. 1947. After graduation from MU, he returned to Clinton where he practiced veterinary medicine, treating both large and small animals, for more than 44 years.

Survivors include his wife; one son, John Forrest of Clinton; one daughter, Mrs. Susan (Mark) Baldwin of Des Moines; two grandchildren; one brother, Charley Forrest in Troy, Maine; and several nieces and nephews.

David Phelen, MU DVM ’63, died Oct. 22, 2006 at his home at his home in Punta Gorda, Fla.

He was born June 19, 1936, in Russellville, Mo. Dr. Phelen served in the US Army 2nd Armored Division from 1954 to 1957, and was stationed in Germany. During his professional career, he was associated with Merck, Sharp & Dome of West Point, Pa., as an associate director; Glaxo SmithKline of Philadelphia, Pa., as a director; project director of R&D Campus Construction; and chairman of Worldwide Facility Planning. He also served as president of International Consultants Network, Inc., and was president and CEO of American Veterinary Co-operative Inc.

Dr. Phelen was also a past president and member of the Southern Illinois Veterinary Medical Association; a member of the Missouri, Illinois, and Pennsylvania Veterinary Medical Associations and the Greater Philadelphia Technology Council; a fellow of American College of Veterinary Pharmacology and Therapeutics; and the American Society for Research, where he served on the board of directors.

Dr. Phelen moved to Punta Gorda in 1999 from Lima, Ohio. He was elected to the Punta Gorda City Council District 5 in 2005, and resigned a week before his death due to his health.

He is survived by his wife of 44 years, Claire G. Phelen of Punta Gorda; three daughters, Karen Nanette Ditch of Hershey, Neb., Susan Colette Ellis of Olathe, Kan., and Diane Lanette Phelen of Spring City, Pa.; a son, Christopher David Phelen of Washington, DC; seven grandchildren; and seven great-grandchildren.

Joy Shelton, wife of Dr. George Shelton, retired as associate dean of the University of Missouri College of Veterinary Medicine and retired dean of the Texas A&M college, died Nov. 17, 2006 in her home in Columbia, Mo.

Mrs. Shelton was born in Stephenville, Texas on May 29, 1930. The family moved to Arlington, Texas in 1940 where she graduated from high school and completed two years of college at what is now the University of Texas at Arlington.

She married Dr. Shelton in Arlington in 1949. Dr. Shelton graduated with a Doctor of Veterinary Medicine degree from Texas A&M University in 1948 after having served for three years in the Army Air Corps. They moved immediately to Missouri. After a few months in private veterinary practice, the family moved to Columbia and the University of Missouri College of Veterinary Medicine where they would work for the next 25 years.

Dr. Shelton’s initial work was in the Microbiology Department. He would later serve as associate dean. During those years, Mrs. Shelton supported her husband by rearing two children, typing theses, working as a mentor for veterinary student wives, helping raise money for the student loan funds, and helping to manage auxiliary programs.

In 1973, Dr. Shelton was appointed Dean of the College of Veterinary Medicine at Texas A&M University where he served until retirement. Mrs. Shelton first served as coordinator of tourist information at College Station, Texas. She later was named chairwoman of the US Housing and Urban Development committee to plan and coordinate new streets and sewers for depressed areas of Bryan, Texas.

In 1988, after Dr. Shelton retired from Texas A&M, they returned to Columbia. They continued to be active in the community.

Survivors include Dr. Shelton; children Kay Kapp and Darrell Shelton, both of Bellville, Ill.; and numerous grandchildren and great-grandchildren.

Memorial contributions can be made to the Joy and George Shelton Veterinary Medical Scholarship Fund, c/o Greg Jones, MU College of Veterinary Medicine, W-203 Veterinary Medicine Building, University of Missouri, Columbia, Mo., 65211.

Paulletta Gaye King, MU College of Veterinary Medicine UVIS project manager, passed away Dec. 2, 2006. A 1966 graduate of Paris (Mo.) High School, Ms. King attended Northeast Missouri State University in 1966–67. She began working for MU in 1972. During her time there, she served as a secretary-stenographer, chief accounting clerk, administrative assistant and finally as a supervisor for data control.

She transferred to the College of Veterinary Medicine in 1990 and worked for the veterinary medical diagnostic lab until 2003, when she transferred to the College of Veterinary Medicine’s information technology department as the Universal Veterinary Information System (UVIS) project manager, where she was instrumental in implementing an electronic medical record system for the college.

During her career with the university, Ms. King served on the Chancellor’s Staff Advisory Council from 1988 to 1991, was a vice chairperson in 1989, and in 1990 served as recorder. She also served as co-chairperson of Staff Recognition Week festivities and chairperson of the election committee. She was awarded the Staff Development Project Award in 1992, Outstanding Service Award in 1992, Chancellor’s Outstanding Staff Recognition Award in 1997, and the Dean’s Impact Award in 2004. She was also a member of the MU Jefferson Club and the Westside Kiwanis Club.

She married Wayne King in 1970, and she survives. Donations in Paulletta’s honor can be made through Greg Jones, director of development, W205 Veterinary Medical Building, College of Veterinary Medicine, University of Missouri, Columbia, Mo., 65211.

70’s

Don McCormick, MU DVM ’76, has authored a second of three books describing true-life incidents as a veterinarian. His first book, Companions: Christ-Centered Prayer, was composed in 2004 during his work at the Monnett (Mo.) Animal Hospital. The second book, Compassion: Christ-Centered Love, was published early in 2006.

Dan Brown, MU DVM ’77, in June 2006 withdrew his candidacy for state senator in the Missouri 16th District. He filed for the race as a Republican and would have challenged Merrill Townley, MU DVM ’63, who currently holds the position.

80’s

Barbara Eichler, MU DVM ’83, opened her Community Animal Hospital in Hazelwood, Mo. The event was celebrated with a ribbon-cutting ceremony on May 10, 2006.

Ken Struckhoff, MU DVM ’84, ran for city council re-election in Richland, Mo.

Steve Strubberg, MU DVM ’89, was recognized in the Hermann (Mo.) Advertiser-Courier newspaper for helping the local 4-H Club.

90’s

Amy Piepergerdes Warren, MU DVM ’92, recently moved to Los Angeles to begin work at the Studio City Animal Hospital.

David and Amber Ihrke, DVM ’95 and ’96, respectively, announced the birth of a daughter, Emily Rachel Ihrke. She joins sisters Madeline and Catherine. The family lives in New Lenox, Ill.

Greg Langley, MU DVM ’95 and a practicing veterinarian in Thayer, Mo., was nominated for a Distinguished Alumnus Award at Missouri State University.

Crystal Harding, MU DVM ’97, on March 1, 2006 opened the Animal Medical Center in Park Hills, Mo.

Heather Lewellen Buchanan, MU DVM ’97, and her husband Joe, announced the birth of their first child, Robert Scott, born May 31, 2006. Dr. Buchanan is a technical editor for Advanstar Veterinary Healthcare Publications. The family lives in Kansas City, Mo.

Dan and Rachel Goehl, MU DVM ’98 and ’97 respectively, added space and staff to their Canton (Mo.) Veterinary Clinic. The couple purchased the business in 1998 from Michael Limville, MU DVM ’83. There are nine staff members and added 1,700-sq.-ft. of space.

Deborah Leach, MU DVM ’98, opened the My Zoo Animal Hospital in Columbia, Mo. The 3,600-sq.-ft. clinic, which opened in May 2006, specializes in companion animals and exotics.

Karen Fieser, MU DVM ’99, joined the staff of the Deer Ridge Animal Hospital in Jackson, Mo. She previously practiced veterinary medicine in Kennett, Mo.

‘00

Cliff Miller, MU DVM ’00, married Suzanne Bean on April 22, 2006. Dr. Miller operates the Green Hills Veterinary Clinic in Moberly, Mo.

Justin Bouse, MU DVM ’02, joined the Pacific Animal Hospital in Washington, Mo. He joins Brian Hezel, MU DVM ’00.

Kelly Whitchurch, MU DVM ’02, joined the Franklin County Animal Medical Center in Washington, Mo. in April 2006.

Nicolas Coston, MU DVM ’04, and his wife, Michelle, announced the birth of a son, Brandon Ray Coston, born Jan. 13, 2006. Dr. Coston is an associate at the Ft. Smith Animal Emergency Clinic in Ft. Smith, Ark.

Andrea Grow, MU DVM ’04, announced the birth of a daughter, Allyn Marlene Grow, born April 17, 2006 in Kansas City.

Krista LeGrand, MU DVM ’05, has taken a new job at the Jefferson Animal Hospital, Louisville, Ken.

Stephen Curry, MU DVM ’05, joined the Animal Health Center in Charleston, Mo. The clinic is owned by Stephen Williams, MU DVM ’90.

Jarrett Seiler, MU DVM ’06, joined the staff at the Heartland Veterinary Care clinic in Jackson, Mo. He joins Kelly Carrow, MU DVM ’97, and Bruce Brandum, MU DVM ’06.
In the 1950s, it was unclear exactly what a university nuclear reactor would do.

Only a few years before, the sole use for nuclear energy was to destroy two Japanese cities. The fear that the Soviet Union would do the same to US cities—with the attending nuclear fallout and mysterious radiation sickness—didn’t bode well for nuclear power to be anything but destructive. Beyond weapons, the only other practical use for nuclear power seemed to be electricity production.

University of Missouri leaders knew that for this new energy to be put to new beneficial uses that it would have to be studied first hand. They envisioned constructing what would become the first university research reactor.

But, they added another vision that would set the standards for universities that followed. From the beginning, this reactor would be involved in collaborative research programs in the life sciences, particularly healthcare. It was a concept that helped create nuclear medicine.

A Powerful Collaborative Vision

It was in the chaotic days of the GI Bill, when World War II veterans flooded the MU campus, that the idea of a MU reactor took hold with Huber Croft, dean of the College of Engineering. The US Atomic Energy Commission was looking to stimulate peacetime nuclear energy research. Croft thought that sleepy MU could be first—beating the big ivy-league schools back east.

In this era of the tailfin and two-tone convertible, MU President Elmer Ellis picked up the idea and appointed a committee to evaluate how a research reactor might stimulate scientific research at a land-grant institution.

The committee did something interesting. It not only looked into uses of a reactor per se, but spent months surveying MU science and medical faculty on possible collaborative projects. They also talked to engineers at the Missouri School of Mines (now UM-Rolla).

Like the laser that came later, nuclear power was a solution in search of a problem. Nonetheless, research ideas that could be advanced with the availability of nuclear energy began to emerge.

The committee estimated costs and possibilities, met with federal and state agencies, and compiled a proposal that spanned several sciences.

In a February 1959 press release, President Ellis said, “New vistas of a nuclear age have touched every field of science, from agriculture to medicine, from geology to zoology, and from engineering to veterinary science, in addition to the important discoveries being made in chemistry and physics. All those fields are a part of the University of Missouri’s educational responsibilities to our youth.
and to all our citizens. We have to move forward with the nuclear age, lest we fall hopelessly behind.”

In June 1959, Missouri Governor James Blair signed an appropriations bill to fund the project. The Atomic Energy Commission issued a construction permit for the reactor on Nov. 21, 1961.

State allocations totaled $3.4 million. Power for the 10 megawatt (ten million watts) MU Research Reactor (MURR) was turned on in late 1966.

President Ellis’ forecast was on the mark. MURR conducted not only its own research, but immediately began to collaborate with faculty and students in dozens of disciplines. It also provided products and services that directly benefited the citizens of Missouri, as well as others in universities, industries, and agencies worldwide.

As the first university reactor in the country, it also set the template for those that followed.

Curing Cancer With Radiopharmaceuticals

It had been known for years that radiation could kill cancer cells. Most early work concentrated on the use of external beams of radiation, but it became apparent from research done with radium that radiation delivered internally, and aimed precisely, was more effective.

While linear accelerators to deliver external beams were being developed elsewhere, MU medical and nuclear researchers began to envision ways to internally irradiate target cancer cells while avoiding healthy cells.

In the case of thyroid cancer, it was surprisingly easy. It had been known for a century that a healthy thyroid absorbs iodine. Iodine, in its natural state, is an element with an atomic mass of nearly 127. By splitting the heavy atoms of uranium in nuclear reactors, researchers could make iodine with four more neutrons than usual.

This new isotope, a radionuclide, was called Iodine-131. The extra neutrons made Iodine-131 unstable, and the molecule sought to get rid of them. Shedding those extra neutrons released cancer-killing radiation.

Iodine-131 was so good at hunting down thyroid cancer that the death rate for patients having several forms of this disease became very low. Indeed, Iodine-131 often finds and cures thyroid cancer cells that have spread to other parts of the body.

But how do you get a radionuclide to hunt down cancer in places with no similar attraction? Here, the idea was to attach the radioactive material to something that does naturally guide itself to specific tissues and organs in the body.

Something New—Quadramet

Into this realm of research, the radiological research division of the Department of Radiology in the MU School of Medicine and the MU College of Veterinary Medicine came into the picture. Bone cancer, a painful and fatal disease, afflicts both people and dogs. Research indicated that it was possible to develop a biomolecule-guided radionuclide therapy to target cancer-killing radioactivity exactly where needed.

What the researchers found would be later called Samarium-153-EDTMP, commercially known as Quadramet. In this case, the radionuclide Sd-153 is attached to a molecule that is attracted to a natural constituent of all bones, phosphorus.

Cancerous bone uses phosphorus more rapidly than healthy bone, so the Quadramet is attracted to it. Once in place, the radiation from the samarium-153 relieves the pain from bone cancer and in some cases shrinks the tumor.

MU College of Veterinary Medicine faculty, who already had long-standing collaborations with MURR Center researchers, conducted patient clinical trials with Samarium-153-EDTMP with dogs afflicted with bone cancer. Those results lead to FDA clinical trials and, later, to the drug’s certification in 1997.

It was also superior to the then standard use of opiate drugs for relieving bone cancer pain—Samarium-153 Quadramet is not addictive and does not cause the extreme drowsiness that would otherwise degrade the quality of life.

Interesting, benefits of this treatment turned out to be quite good for temporary and long-term palliation of pain in animals, with one out of every seven dogs being cured. Quadramet is now being used routinely in dogs, and even horses and cats, suffering from bone cancer.

New Efforts in Curing Cancer

Such a success has set the stage for the next generation of MU cancer research. New radionuclide-biomolecule combinations are being developed to treat melanoma, multiple myeloma (cancer of the bone marrow), and other forms of cancer.

With this effort something significant to MU is coming together, a collaborative joining of resources uniting to achieve the coveted National Cancer Institute’s designation as a Comprehensive Cancer Center.

Partnering with MURR in this effort are the MU Chemistry and Food Science and Nutrition departments, College of Veterinary Medicine, School of Medicine, the Ellis Fischel Cancer Center, and the neighboring Harry S. Truman Veterans Administration Hospital.

Should such a cancer center come to be, it will be at least partially due to those 50 years ago who envisioned what a collaborative university effort with a nuclear reactor might do.
For two decades, the annual Gentle Doctor Benefit at the University of Missouri College of Veterinary Medicine has raised funds for worthy causes. In the past few years, this has meant endowing a scholarship for veterinary medical students who, on average, graduate with $100,000 in educational debt.

The 2006 benefit raised $41,322 toward these scholarships. This brings the total value of the endowment to more than $168,000 toward a goal of $200,000.

You can join in this effort and enjoy a night of fun with your fellow animal lovers. Bid on cool items from furniture to veterinary-specific items to vacation packages. Make your reservations today for the April 14, 2007 auction and dinner—the 20th anniversary of the founding of this tradition.

Auction items, individual sponsors, and corporate sponsors are being solicited. For details, contact Lisa Jones at 888-850-2357 (e-mail: JonesLR@missouri.edu).

For more information and to view the available auction items, see the web page at: http://www.gentledoctorbenefit.org/