

Spring / Summer 2001

College of Veterinary Medicine • University of Missouri-Columbia

Veterinary

M E D I C A L R E V I E W

Revolution in Lab Animal Science



Experience is the Best Teacher



*Dudley McCaw, D.V.M.,
Small Animal Medicine*

Healing Light
with

The laser has found a home at the MU College of Veterinary Medicine

VMR

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on the cover...

*Dr. Dudley McCaw administers the laser
part of photodynamic therapy, one of the
newest ways to treat certain types of
cancer.*



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Veterinary

M E D I C A L R E V I E W

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Spring!



The Gentle Doctor Benefit has become not just a College, but a University tradition. It is the largest non-sporting or graduation event held on campus.

A time of
renewal and
celebration for
our college
family.



The setting for the 2001 Gentle Doctor Benefit could not have been more spectacular. Over 1,000 people

gathered March 31 in the Hearn Center for an evening of fellowship in support of the College of Veterinary Medicine. Fittingly, the theme was the arrival of Spring. Each table setting included a beautiful flower arrangement and a hand-crafted butterfly. Chirping (mechanical) birds flew overhead. And, spirits were certainly high, as evidenced by the active bidding during the auctions. Over \$40,000 was raised to support student scholarships.

The Gentle Doctor Benefit is emblematic of the strong network of support enjoyed by the College. Special thanks to Jimmie Lawrence and other parents (past and present) who worked so hard this year, just as they do every year. And, where would we be without the commitment of Ben Riley, Donna Dare, and other Col-

lege faculty, staff, and students? As with essentially every function, the entire College family pulled together to make the evening a success.

Speaking of *family*, March 31 was also Family Day at the College of Veterinary Medicine. This event celebrates the critical role that family members play in our students' success. With the retirement of Dr. Finny Aronson and Delores Melloway, our newly-appointed Associate Dean for Student and Alumni Affairs, Dr. Ron Cott, and his staff assistant, Linda Van den Berghe, took the lead in organizing the day. We all know that no one can truly replace Finny and Delores. But, Ron and Linda certainly did a great job! Over 300 people participated, filling the Adams Conference Center

to capacity (and beyond). They were treated to a great day, as our faculty provided insight on the *rigorous* curriculum faced by students. The day was filled with emotions such as pride, appreciation, and, yes, a sense of *family*.

Family Day and the Gentle Doctor Benefit are but just two of a series of events each Spring that bring attention to the critical missions of the College of Veterinary Medicine. Collectively, these events *renew* our commitment and also allow us to *celebrate* achievements.

Things got started March 16 and 17 when thousands of people toured the College during Open House.

This event is largely organized by students, and, boy, do they do a super job.

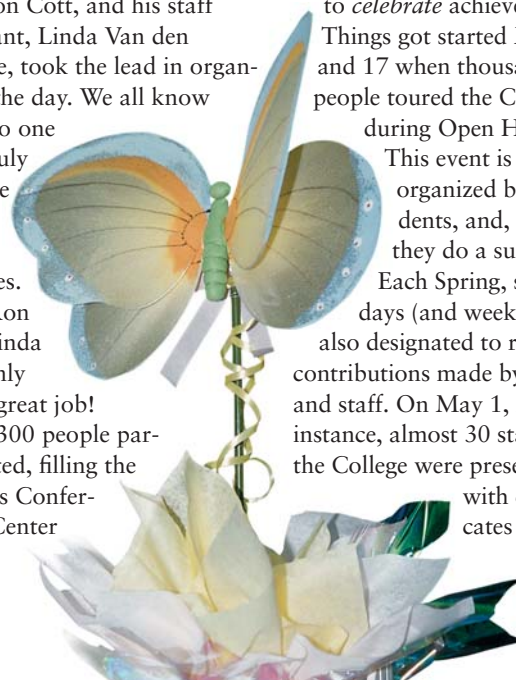
Each Spring, special days (and weeks) are also designated to recognize contributions made by retirees and staff. On May 1, for instance, almost 30 staff from the College were presented with certificates recognizing

ing 5, 10, 15, 20, 25, and 40(!) years of service to the university.

The act of *celebration* hit full stride at the Awards Banquet May 16 when almost 100 awards and scholarships totaling over \$150,000 were presented to faculty, staff, and students to recognize their accomplishments. Ron Cott and Linda Van denBerghe again played a key role. Then, on May 18, the College graduated 62 *newly-minted* veterinarians who have already taken important positions in essentially every facet of the profession. Associate Dean for Academic Affairs Dr. C. B. Chastain and his staff assistant Renna Cole (taking over for Delores Melloway) ensured that the commencement "ran like clockwork" as graduates were inspired by former Chancellor Haskell Monroe's address.

Yes, Spring is a special time at the College of Veterinary Medicine — a time of renewal and celebration for our family.

VMR



Around the CC

Buening Named Chair of CVM Department of Pathobiology

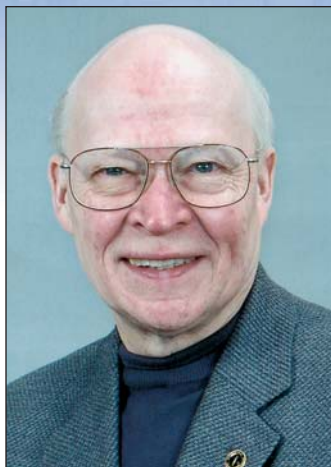
Dr. Jerry Buening, interim chair of the MU CVM Department of Pathobiology since 1998, was appointed chair in November 2000.

Dr. Buening was also named interim director of the College's Veterinary Medical Diagnostic Laboratory (VMDL), effective January 1, 2001, until a new director is recruited. Dr. Harvey Gosser, only the second VMDL director since 1968 when the organization was founded, recently retired.

With the dual responsibilities of chair and interim director, he will relinquish his responsibilities as associate dean for research and post-doctoral studies when that position is filled.

As chair of Veterinary Pathobiology, Dr. Buening will initiate a national search for a VMDL director. The director will report to the Dean, serve on the CVM Executive Committee, and ensure that the laboratory continues to provide excellent service to practitioners and animal owners.

Dr. Buening received his DVM degree from Purdue University in 1964. In 1969, Purdue awarded him a PhD in veterinary virology. That same year he came to the MU College of Veterinary Medicine as an assistant professor. Appointed associate professor in 1972 and professor in 1981, Dr. Buening was named associate dean for research in 1988, associate chair of Veterinary Pathobiology in 1997, and interim



Dr. Jerry Buening

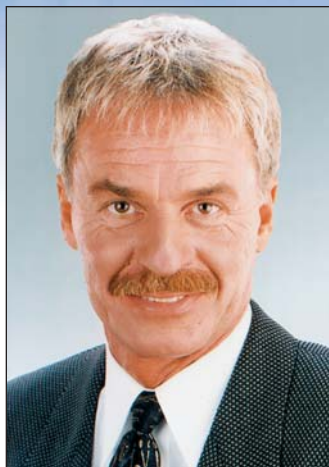
chair of Veterinary Pathobiology in 1998. He is a Diplomate in the American College of Veterinary Microbiologists.

Dr. Buening was presented the Beecham Award for Excellence in Research in 1987 and the Distinguished Alumnus Award by Purdue's College of Veterinary Medicine in 1992.

His current research projects include creating a xenografted mouse model for *Ehrlichia chaffeensis* under a National Institutes for Health (NIH) grant. He also directs a NIH program to assist minority biomedical researchers and a US Department of Agriculture project designed to empower students enhancing their own instruction. Dr. Buening has more than 75 research publications in refereed journals and currently acts as a major advisor to 11 graduate students.

Cott Assumes Duties of Associate Dean

Ron Cott, MU DVM '73, was appointed Associate Dean for Student and Alumni Affairs effective January 2001. Dr.



Dr. Ron Cott

Cott has been in private practice in the Kansas City area since 1976 and served as the College's Associate Director of Development during the College's recent 50th Anniversary Endowment Campaign. He also has served as an adjunct professor in Veterinary Medicine and Surgery and has coordinated the CVM's veterinary business course since 1998.

Dr. Cott is a past president of the Missouri Veterinary Medical Association (MVMA) and a recipient of both the CVM's Alumnus of the Year and the MVMA's Veterinarian of the Year awards.

Dr. Cott stepped into the shoes of Dr. Everett (Finny) Aronson who has retired.

International Eye Expert Joins MU CVM

Dr. Kristina Narfstrom, an international expert on retinal disease and Professor of Veterinary Medicine and Surgery at the University of Agricultural Sciences, Uppsala, Sweden, has been appointed the

Ruth M. Kraeuchi-Missouri Professor in Veterinary Ophthalmology at the University of Missouri-Columbia's College of Veterinary Medicine.

She joined the MU faculty in January. Her work will focus on inherited canine and feline retinal diseases. As a member of MU's Vision Sciences Group, her studies will also enhance understanding of eye problems in humans. In addition, Dr. Narfstrom will be involved in resident training and graduate teaching programs.

Dr. Narfstrom was awarded her DVM degree from the Royal Veterinary College (Stockholm) in 1973. In 1975, she studied large and small animal ophthalmology at the University of Pennsylvania School of Veterinary Medicine. She received a Veterinary Medical Doctoral (equivalent to a PhD) from University Hospital of Linköping, Sweden in 1985.

Dr. Narfstrom was named a full professor at the Swedish University of Agricultural Sci-



Dr. Kristina Narfstrom

College

ences in 1992 and also served there as Section Head for Ophthalmology. She recently was President of the European College of Veterinary Ophthalmologists.

"We are indeed fortunate to have such a distinguished, internationally-recognized veterinary ophthalmologist and vision scientist join our faculty," said Dr. Cecil Moore, chair and director of MU's Veterinary Medical Teaching Hospital. "By continuing her research efforts using the unique animal models she has identified, Dr. Narfstrom has a very exciting future at MU in veterinary and comparative ophthalmology."

The professorship was funded though a bequest by Ruth M. Kraeuchi, a prominent St. Louis dog breeder and author. Her goal was for the University of Missouri College of Veterinary Medicine to provide leadership in developing and coordinating research in veterinary ophthalmology while contributing to graduate training programs.

Johnson Discusses Human/Animal Bond Issues

Rebecca Johnson, PhD, RN, Millsap Professor of Gerontological Nursing at the MU Sinclair School of Nursing and adjunct professor in Veterinary Medicine and Surgery, joined others in a meeting with Dr. David Satcher, the US Surgeon General, in Washington D.C. in October. The meeting was to acquaint the Surgeon General with



Dr. Rebecca Johnson

research on the role of animals in promoting human health and well being.

Dr. Johnson focuses her research on relocation of the elderly, but her interest has expanded to include documentation of benefits of the human/animal bond in older adults.

The meeting in Washington DC included members of *Vet One*, an organization dedicated to promoting the human/animal bond.

Dr. Johnson collaborates with Dr. Richard Meadows, Professor of Veterinary Medicine and Surgery, and Director of the College's emerging Center for the Study of Animal Wellness. They are studying the beneficial effects of hospital visits by animals on human cancer patients. Important benefits animals gain through interactions with humans will also be documented. This "Hand and Paw study" is titled *Animal Assisted Activity with Radiation Therapy Patients: A*

Randomized Clinical Trial.

Dr. Johnson was extended an invitation to participate in the discussion in Washington through former Assistant Surgeon General, Dr. Michael Blackwell, Dean of the College of Veterinary Medicine at the University of Tennessee. Dr. Blackwell became acquainted with Drs. Johnson and Meadows' research through the Vet One group.

Drs. Johnson and Meadows are also investigating the role of the human/animal bond in improving the health of elderly African-Americans and Latinos. Individuals with and without canine companions will be studied.

Henry Honored By Auburn University CVM

Dr. Carolyn Henry, assistant professor in veterinary oncology, received one of five Young Achievers awards presented by Auburn University's College of Veterinary Medicine. The awards, given to selected members of the 1990 graduating class, are based on professional achievement and contributions to society.

After obtaining her DVM from Auburn, she worked in private practice and then completed an oncology residency and master's degree at Auburn in 1993. Dr. Henry then served as an assistant professor at Washington State University's College of Veterinary Medicine from 1993 to 1997. Her awards there included the Jerry Newbrey Teaching Scholar Award and the Westcott Clinical Teach-

ing Award.

Dr. Henry is a Diplomate of the American College of Veterinary Internal Medicine. She is also a member of the Veterinary Cooperative Oncology Group and the Veterinary Cancer Society Executive Board. She holds a joint appointment at the MU School of Medicine in the Internal Medicine Department's Division of Hematology/Oncology.

She is a grant reviewer for the American Kennel Club's Canine Health Foundation, an editorial reviewer for the *Journal of Veterinary Internal Medicine*, and a member of the editorial board of *The Vector* at the University of Missouri.

Dr. Henry has received over 30 research grants or fellowships at Auburn, Washington State, and MU. She has approximately 50 scientific publications and has spoken extensively at veterinary conferences.



Dr. Carolyn Henry accepts the Young Achievers Award from Dr. Timothy Boosinger, Dean of Auburn University's College of Veterinary Medicine.

Franklin Wins Lab Animal Foundation's Award

Dr. Craig Franklin, associate professor of veterinary pathology, received the 2000 Pravin N. Bhatt Young Investigator Award from the American Association for Laboratory Animal Science (AALAS) Foundation.

The award was established in 1995 to recognize scientists who have made significant contributions to the fields of laboratory animal science or comparative medicine. The awardee must demonstrate a commitment to a career in science, originality of thought, and experimental design in scientific pursuit. Scientists 40 years of age or younger who have been engaged in scientific

research for at least five years are eligible.

Dr. Franklin received his DVM from the MU CVM in 1987 after which he entered the MU Laboratory Animal Medicine Area Program. He completed this program in 1990 and received a PhD in Pathobiology in 1992. He then joined the faculty of the Research Animal Diagnostic and Investigative Laboratory (RADIL) in the MU Department of Veterinary Pathobiology. He currently oversees a research program, directs necropsy services in the RADIL, and is the director of an NIH-funded post-DVM training program in Comparative Medicine.

Dr. Franklin's areas of interest include host-parasite interactions of bacterial pathogens

of laboratory animals with emphasis on the host immune response to several species of *Helicobacter*, the impact of naturally-occurring infectious disease on biomedical research, phylogeny of novel rodent pathogens, development of diagnostic techniques for rodent pathogens, and phenotyping of genetically-engineered rodents.

CVM College Joins In MU's Life Sciences Center

The MU College of Veterinary Medicine will be one of six health- or science-related University colleges involved in MU's new Life Sciences Center.

The Center will provide state-of-the-art facilities where

research programs employing cutting-edge technology can take place side by side with student instruction. The Center will be centrally located at the northwest corner of the intersection of Rollins and College Ave. to facilitate collaboration among faculty, staff and students from the Colleges/ Schools of Agriculture, Food and Natural Resources; Arts and Science; Medicine; Human Environmental Sciences; Engineering; Nursing; and Veterinary Medicine.

Research conducted at the Life Sciences Center will focus on improving food, human and animal health, and the environment. Examples of these collaborative projects include improved understand-

Gosser Retires After 12 Years at CVM



Dr. Harvey Gosser, only the second person to direct the College's Veterinary Medical Diagnostic Laboratory (VMDL), retired recently.

When Dr. Gosser assumed the directorship from Dr. Larry Morehouse in 1988, the laboratory received 17,804 requests for veterinary medical diagnostic assistance from Missouri veterinarians and others. In 2000, that number had increased to almost 41,000 cases.

Today, the laboratory has grown to support seven anatomic pathologists and three clinical pathologists.

Dr. Harvey Gosser, retired director of the Veterinary Medical Diagnostic Laboratory, stands near a stained glass window of Hillda and Louise, the College's mule mascots. The window was a gift by Dr. Thomas Lenz, MU DVM '75, who also created the stained glass windows hanging in the equine and small animal sections of the MU Veterinary Medical Teaching Hospital.

Specialty services are also provided in immunohistochemistry, molecular diagnostics, and avian pathology.

In 1988, the VMDL was located in its main building plus two pink and green house trailers. All laboratories in the main building were remodeled in 1998-99. At that time, new laboratory space was also provided in the Veterinary Medicine Building for histopathology and serology labs. The old trailers were finally destroyed.

Dr. Gosser served as vice president of the Association of Veterinary Laboratory Diagnosticians (AAVLD) from 1985-86. He then served as that organization's secretary-treasurer from 1987-96. He was also a member of the Executive Board, Accreditation Committee, and a reviewer for the *Journal of Veterinary Diagnos-*

ing of cardiovascular function and disease protection; diagnosis, treatment and prevention of cancer; quality and performance of crops; animal reproduction; nutritional control of diseases; control of infectious diseases; and methods for bio-remediation and sustaining the environment.

Class of 2004 Starts Tradition

Most DVM students at graduation only vaguely remember the concerns, expectations, and fears that they had at the beginning of their veterinary medical education. To help serve as a reminder and to alert later classes that these concerns are often universal, the Class of 2004 has created a time capsule.

This time capsule contains letters from each class member



Illustration of the planned Life Sciences Center.

to himself/herself to be opened during graduation ceremonies in 2004. A second letter addressed to the future freshman Class of 2008 shares these initial personal perceptions.

The Class of 2004 hopes that later classes will follow this tradition.

Frappier Named One of Ten 2001 William Kemper Fellows

Brian L. Frappier, clinical associate professor of veterinary biomedical sciences was one of ten MU educators to win the 2001 Kemper Fellowships for Teaching Excellence.

Dr. Frappier teaches microscopic and gross anatomy and joined the College in 1988. He is one of the first faculty members freshmen meet as they enter the veterinary curriculum. Students find his classes demanding, but rewarding. Their evaluations of his courses consistently rank him as the best of the best with mean scores of 4.8 and 4.9 on a scale of five.

Dr. Frappier has received 12 teaching awards including five Golden Aesculapius Teaching Awards—one for every year in which he was eligible. He also has served in key service and administrative roles within the College of Veterinary Medicine including the College Curriculum Committee, the Committee Concerning Essential Elements of the DVM Degree, a committee to

study technical standards for veterinary medical students, and the Curriculum Review Task Force.

The Kemper awards were created in 1991 with a \$500,000 gift from the William T. Kemper Foundation to honor 10 outstanding MU teachers. Kemper, a 1926 MU graduate, was a well-known civic leader in Kansas City until his death in 1989. His 52-year career in banking included top positions at banks in Missouri, Kansas, and Oklahoma.

College Earns 7th Spot In NIH Veterinary Research

The MU College of Veterinary Medicine is near the top in research support from the National Institutes of Health. It is ranked seventh nationally in the most recent NIH rankings of colleges and universities conducting research in veterinary sciences, well ahead of other prestigious institutions.

According to the report, the MU CVM received \$5.2 million in funding from the NIH in fiscal year 1999 for veterinary medicine research.

The University of Washington was ranked first with \$15.3 million. Also among those in the top ten were: the University of Wisconsin-Madison, Harvard, University of California-Davis, Texas A&M, and Johns Hopkins.

Accolades

Dr. Frank Booth, professor of veterinary biomedical sciences, was a featured speaker at the *Diet and Gene Interactions: Equal Partners in Health?* symposium sponsored by the US Department of Agriculture.



Dr. Gerald Buening, chair of the department of veterinary pathobiology, met with US Congressional staff representatives concerning pending research-related legislation.



Dr. Stan Casteel, associate professor of veterinary pathobiology, presented the papers *Refining the Risk of Heavy-metal Contaminated Soils and Biokinetics of Cadmium Following Oral Exposure in a Swine Model* to the International Congress on Environmental Health, held in Hanover, Germany.



Dr. Carolyn Henry, assistant professor of veterinary oncology, presented three talks to the African Veterinary Association Congress 2000: *Managing Canine Mast Cell Tumors, Oral Melanoma: A Comparative Oncology Approach*, and *Oncologic Emergencies*.



Dr. Tony Mann, associate professor of veterinary medicine and surgery, chaired the Abstracts Program of the Seventh Annual International Veterinary Emergency and Critical Care Symposium held in Orlando.

Dr. Lela Riley, director of the Research Animal Diagnostic and Investigative Laboratory, participated in a Smithsonian Institute meeting regarding genome banking and cloning of endangered animal species.



Dr. Wade Welshons, associate professor of veterinary biomedical sciences, traveled to Berlin and Italy as an invited speaker at the Conference on *Bisphenol A: Low Dose Effects—High Dose Effects*.

tic Investigation. In addition, Dr. Gosser served as president of the Missouri Livestock & Poultry Health Council in 1997. He also held various positions within the Missouri Veterinary Medical Association including president in 1997.

In 1993, Dr. Gosser received the Pope Memorial Award in recognition of noteworthy contributions to veterinary medicine. This is the highest award given by the AAVLD.

Dr. Gosser was advisor to the College's Mule Club for seven years. During that time he traveled extensively throughout the state with the mules and veterinary medical students, representing the College and the University.

Dr. Gosser and his wife, Barbara plan to eventually return to Alabama and spend time with their new granddaughter.



INTERIM DEAN

Dr. W.H. "Hal" Eyestone

1918 - 2001

DR. WILLARD HALSEY "HAL" EYESTONE, interim dean at the MU College of Veterinary Medicine from 1981 to 1982, died February 3 in Columbia, Mo. He steered the College through a tough financial time and helped strengthen the basic sciences.

After a distinguished 20-year career at the National Institutes of Health (NIH), Dr. Eyestone joined the College in March 1972 when he was recruited to be chair of the Department of Pathology. Upon being named Interim Dean in 1981, Dr. Eyestone faced a daunting financial picture.

"Hal took over as Dean during terrible financial times for the College and he saw us through some hard years," remembers Dr. Larry Morehouse, former Pathology Department Chair and the first Director of the College's Veterinary

Medical Diagnostic Laboratory. "These were years of zero faculty and staff raises and it was almost impossible to get financial support for anything. At times we felt like we were trying to hold the school together with rubber bands.

"This College has always been blessed with having the right dean at the right time. Hal's experience with funding projects at the NIH was critical for us to find and obtain every possible dollar and spend it wisely. He held the school on an even keel for two very critical years."

While dealing with the severe financial retrenchments during his 'watch,' he also recruited a number of very important faculty members adding strength to the College's role in veterinary biomedical sciences, physiology, and pathology sections, noted the College's history book, *50 Years of Excellence, A Pictorial Review 1946-1996*.

"He was involved in my recruitment to the CVM in the spring and early summer of 1982 when he was Interim Dean," said Dr. Earl Steffen, research assistant professor in veterinary pathobiology. "Dr. Joseph Wagner (Director of the Research Animal Diagnostic and Investigative Laboratory) set up a time for me to meet with Dr. Eyestone—I had never met an honest to goodness Dean before! I recall that I was greatly impressed with what was clearly a great depth of understanding in Lab Animal Medicine at MU. Having both Drs. Wagner and Eyestone in the MU CVM was a strong factor in my decision to come here. I was surprised and pleased by the kind of personable conversation that Dean Eyestone and I had, being a wet-behind-the-ears medical microbiology post-doc who had previously dealt only with pompous MD's and PhD's in positions of authority at medical schools! I can remember telling my wife that these DVM's were 'salt of the earth' guys with strong credentials but without the big egos."

Dr. Eyestone is also remembered for guiding the critically needed renovation and remodeling of old facilities and helping to construct two new buildings at the Middlebush Equine Center.

Dr. Eyestone was born in Mulberry, Kan. January 7, 1918. He

received his undergraduate degree in 1939 from Kansas State University and his DVM from there in 1941. He briefly taught pathology at the University of Wisconsin before serving in the US Army from 1942-1947. Dr. Eyestone achieved the rank of Captain and earned the Army Commendation Medal. He remained a reserve officer in the Army Veterinary Corps and retired with the rank of Major in 1959.

After attending Harvard University and earning a master's degree in Public Health in 1947, Dr. Eyestone served as a research associate at the Department of Veterinary Science, University of Wisconsin, specializing in cancer research. In 1950, he earned a PhD in pathology from the university, one of the first DVM's to achieve this level of education.

In 1950, he began a long and successful career with various public-health service units of the National Institutes of Health, starting in its Laboratory for Pathology, National Cancer Institute (NCI), in Bethesda, Maryland.

Dr. Eyestone married Betty Johnson in Detroit Lakes, Minn. in 1952. The couple would have four children.

In 1955, he was named head of NCI's Comparative Pathology Section, Institute and Division of Research Services. He was later named Chief of the NIH's Animal Resources Branch and served in that position until December 1970.

In 1967, during the tensions of the Cold War, he was a member of a delegation of US veterinarians to visit the Soviet Union under a scientific and cultural exchange program.

Before retiring from the NIH and coming to the University of Missouri, Dr. Eyestone was named the NIH's Chief of Optometry, Pharmacology, Podiatry, Veterinary Medicine Education Branch.

"In December 1982, Dr. Robert Kahrs was appointed the fourth dean of the College," the College's history book reported. "In the spring of 1983, Dr. Eyestone entered retirement after a critical and highly important period of service as interim dean. He had served the College and University well in a time of great need."



PROFESSOR OF VETERINARY MICROBIOLOGY

Dr. Robert Corwin

1938 - 2001

DR. ROBERT MARVIN CORWIN, a retired professor in the Department of Veterinary Microbiology, MU College of Veterinary Medicine, died February 9 at his home in Hallsville, Mo.

Dr. Corwin was born Aug. 2, 1938, in Moline, Ill., to Marvin and Alice Bossuyt Corwin. He became an Eagle Scout with the Boy Scouts of America in 1953. He married Barbara Stitt on Nov. 8, 1988 in Hallsville.

Dr. Corwin earned a general education diploma at Moline High School; an associate's degree in biology at St. Ambrose University in Davenport, Iowa; a master's degree and a doctorate in zoology at the University of Georgia; and a veterinary medical degree from Michigan State University in East Lansing, Mich.

He was an assistant professor of biology at St. Ambrose University and at Michigan State, then an associate professor of veterinary microbiology at MU from 1974 to 1982. He retired in 1999. Since then, he had been an evening instructor at Columbia College.

Dr. Corwin earned numerous awards and honors, including membership in the American Veterinary Medical Association's House of Delegates. He was a past president and a member of the board of directors of the American Association of Small Ruminant Practitioners and past president of the American Association of Veterinary Parasitologists and the Conference of Research Workers in Animal Disease.

Dr. Erin Champagne and team operate the YAG laser in one of the VMTH's operating suites.

The laser has found a home at the MU College of Veterinary Medicine helping horses, solving eye problems, and speeding soft-tissue surgery

Healing Light with

In the 1960s the laser was a laboratory curiosity and called a solution in search of a problem. Few precisely saw any practical use for the intense light.

Forty years later, lasers have a myriad of everyday industrial uses. Your car's airbag was scribed with a laser to allow it to precisely deploy. Aircraft painters use lasers to mark complex design patterns on the

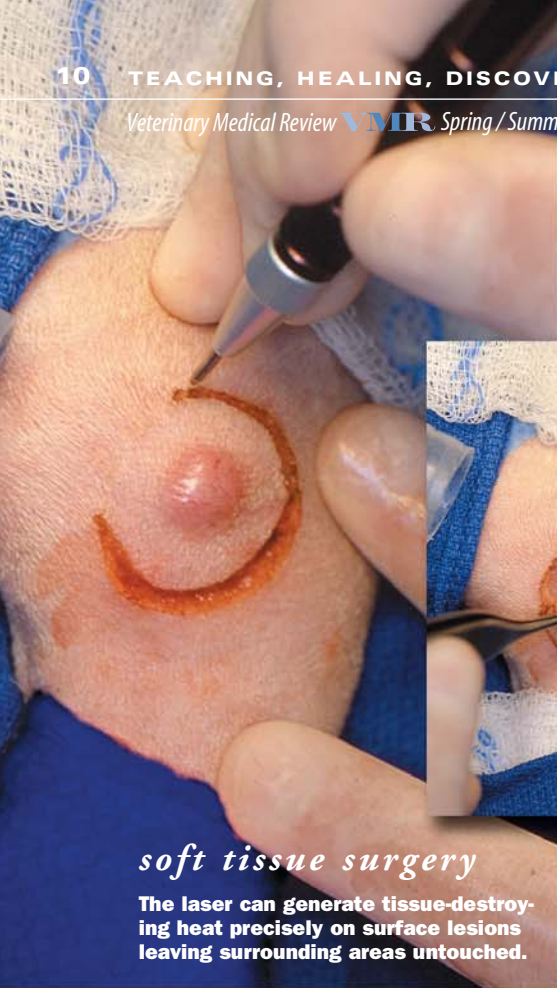
sides of fuselages. The communications industry is exploring lasers as ultra-fast ways to transmit data.

In human medicine, the laser has found a place in treating cancer, correcting eye problems, and facilitating various surgical procedures like removing redundant tissue from the throats of sleep apnea sufferers.

The biomedical laser's ability to

direct intense heat with a high degree of accuracy, consistency, control, and flexibility has made it useful in veterinary medicine also. An endoscopic laser has eliminated many invasive surgeries to aid horses with respiratory problems. Many eye defects, such as detached retinas, can be quickly, economically, and reliably healed with light. Soft-tissue surgeons can use lasers





soft tissue surgery

The laser can generate tissue-destroying heat precisely on surface lesions leaving surrounding areas untouched.

for more precise incisions, reducing post-operative problems and pain for patients. And in combination with agents that react only to laser light, veterinary oncologists are exploring new, less-invasive ways of treating certain cancers.

The College of Veterinary Medicine at the University of Missouri is utilizing many of these techniques, teaching the next generation of veterinarians as well as providing another level of care for its clinical patients. Some of the techniques, such as cat declawing, are fairly routine. Other procedures, such as photodynamic therapy, are at the forefront of medicine.

The Laser in Soft Tissue Surgery

There is no ideal or all-purpose medical laser. Each type has properties that are advantageous for specific types of procedures. The closest thing to an “everyday” workhorse laser for soft tissue surgery is the carbon dioxide (CO₂) laser.

The CO₂ laser is well suited for efficient and accurate incisions. Its energy is readily absorbed by the water in tissue, vaporizing it, yielding an immediate, specific, and precise incision. The laser generally leaves a dry, clean, and sterile

wound. While the CO₂ is not considered a photocoagulating instrument or a substitute for conventional hemostasis techniques, it can seal—like a spot



Less blood in the surgical field allows the surgeon to better identify tissue layers for a more accurate dissection.

welder—small blood vessels and nerve endings.

Its main advantage over traditional “steel scalpel” techniques is that it helps provide a blood free field, said Tony Mann, DVM and Diplomate in the American College of Veterinary Surgeons. Dr. Mann directs the hospital’s emergency and critical care section.

Less blood in the surgical field allows the surgeon to better identify tissue layers for a more accurate dissection. Consequently, the main use of the CO₂ laser at the MU Veterinary Medical Teaching Hospital (VMTH) is for cutting—replacing the scalpel and scissors in many types of surgery.

The CO₂ laser is considered a “what you see is what you get” laser as the surgeon can see the immediate effects of the laser on the tissue.

Because smaller nerve endings are sealed by the laser, there seems to be less post-operative pain, Dr. Mann said. Additionally, microorganisms are destroyed by the laser’s photothermal vaporization, sterilizing tissues and resulting in less inflammation.

Dr. Mann has noticed that there are fewer clinical pain responses with laser surgery during anesthesia than conventional surgical techniques. “This means that laser usage may decrease the amount of anesthetic agent necessary for some problems,” he said. Another advantage of the laser is that it requires less manipulation of tissues during surgery resulting in less tissue trauma. This can be very

important when excising mast cell tumors that can release dangerous histamines when manipulated. With the laser, Dr. Mann said, he can use the laser to draw around the tumor like a pencil.

The carbon dioxide laser’s beam can be changed from a sharp to a less focused point allowing the surgeon to change from a cutting device to one that delivers tissue-destroying heat. This allows the surgeon to ablate, or vaporize by burning, abnormal tissues and wounds that might contain residual tumor cells. As a result, the surgeon has another method to prevent the proliferation of errant cells that could manifest themselves in other parts of the body.

CO₂ lasers in soft tissue surgeries have a few disadvantages, Dr. Mann said. As this type of laser light can’t currently be delivered through a flexible fiber optic cable, it can’t be used through an endoscope.

A New Tool: Photodynamic Therapy

Photodynamic therapy (PDT) is a relatively new treatment for some types of cancer. It is based on the discovery that certain chemicals, known as photosensitizing agents, can dye certain cancer cells. These cells can then be selectively killed when exposed to a particular type of laser light that reacts only to the color of the dye.

Modern PDT originated at the turn of the century in Germany. Researchers experimenting with self-injection of porphyrins noted sunburns due to PDT reactions in their skin. The first report of successful use of treatment in laboratory animals was in 1975. An advantage of PDT is that it causes minimal damage to healthy tissue, said Dr. Dudley McCaw, associate professor of veterinary medicine and surgery and leader of the photodynamic therapy effort at the MU VMTH. He is also a Diplomate of the American College of Veterinary Internal Medicine.

In PDT, the photosensitizing agent, often porphyrin, is administered intravenously, orally, or topically. The drug is absorbed by cells throughout the body, but selectively accumulates in cancerous and pre-cancerous tissue.

These dyed cancer cells are then exposed to a specific wavelength of laser light. The photosensitizing agent absorbs the light and produces an active form of

oxygen that destroys the treated cancer cells.

The technique works because porphyrins absorb energy from photons (particles of light) and transfer this energy to surrounding oxygen molecules. Toxic oxygen species such as singlet oxygen and free radicals are thus formed. These chemicals are very reactive and can damage proteins, lipids, nucleic acids, and other cellular components.

Light exposure must be timed carefully so that it occurs when most of the photosensitizing agent has left healthy cells but is still present in the cancer cells.

The laser light used in PDT is usually directed through a fiber-optic strand placed close to the cancer to deliver the proper amount of light. The fiber-optic device can also be directed through a bronchoscope into the lungs or an endoscope into the esophagus for the treatment of cancer.

However, because the laser light currently in use can penetrate no more than about 3 millimeters of tissue (a little more than an eighth of an inch), PDT is mainly used to treat tumors on or just under the skin or on the lining of internal organs.

"Carcinomas appear to be more sensitive than mesenchymal tumors," Dr. McCaw said. "Published veterinary uses include transitional cell carcinomas, canine oral squamous cell carcinomas, and feline facial squamous cell carcinomas. We have also had success with some canine mast cell tumors."

PDT can be safely repeated several times without harming normal body tissues and can be used alone or in conjunction with other treatments, such as chemotherapy or radiation therapy, without serious interaction. Repeat treatment has been performed as early as two weeks after the initial PDT course.

Currently, Argon-pumped dye lasers and Nd:YAG lasers are the only light sources approved by the FDA for PDT. Less expensive portable diode lasers, which can be plugged into a simple wall socket for power, are clinically used in Europe and experimentally in the US.

Adverse side effects? "The primary reaction is extensive tissue swelling, which begins during treatment and resolves within about three days," Dr. McCaw said. "Treatment of legions near the pharynx requires the placement of a tracheotomy tube. Pulmonary edema has

been observed in some cats. Sensitivity to sunlight, causing severe skin sunburns, is a concern for four to six weeks after treatment, although newer agents are cleared from the body more quickly. Wound infection during the period of tissue sloughing is common but can be resolved with appropriate antibiotic therapy."

Dr. McCaw points out that one of the outstanding aspects of PDT therapy is that complete and usually cosmetic healing occurs, possibly due to the preservation of the tissue's collagen architecture.

The most significant limitation of PDT is delivering laser light to the targeted tissue. With the typical limited laser penetration, conventional surgery is sometimes used to expose internal tumors. It can take time to treat larger tumors, too. Here, Dr. McCaw and team surround and penetrate the tumor with fiber-optic strands that emanate more laser light into the tumor. The alternative is to increase the wavelength of the laser light to achieve more penetration, but this has the unwanted side effect of the additional energy damaging nearby healthy tissue.

PDT is still an emerging treatment for human cancer hospitals. MU is one of the few places in the world where it is used in veterinary medicine.

Lasers in Equine Care

The Nd:YAG laser differs from its CO₂ laser kin by its ability to transmit

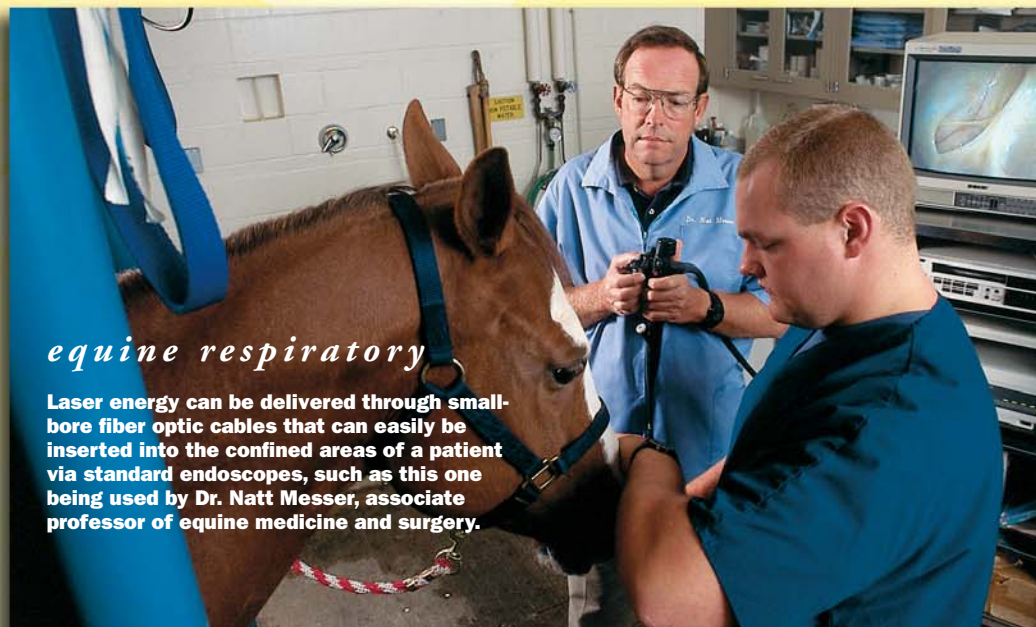


Dr. Tony Mann and team use the laser to remove cancer from the nose of a dog.

light at a wavelength that pours heat into targeted tissue. The YAG can deliver higher powers, too, up to 100 watts. As this energy is less readily absorbed by water, the depth of penetration can exceed three millimeters—making it a useful tool in burning away larger volumes of tissue.

Better yet for surgeons needing to get into confined areas, the energy can be delivered through small-bore fiber optic cables that can easily be inserted into a patient via standard endoscopes.

Because of these characteristics, the YAG laser is mostly used to treat equine upper respiratory problems. Here, the laser is a welcomed substitute for conventional surgery. Often, a 10-minute laser procedure can replace a multi-hour procedure. The animal is spared an invasive procedure, deep anesthesia, and



equine respiratory

Laser energy can be delivered through small-bore fiber optic cables that can easily be inserted into the confined areas of a patient via standard endoscopes, such as this one being used by Dr. Natt Messer, associate professor of equine medicine and surgery.

painful post-operative recuperation, and the horse's owner is spared a larger bill.

The VMTH's equine section was an early user of this technology—the first YAG laser was used in 1989 with the arrival of Dr. David Wilson, now head of the teaching hospital's equine section, associate director of the hospital, associate professor in veterinary medicine and surgery, and a Diplomate of the American College of Veterinary Surgeons.

Dr. Kevin Keegan, associate professor of veterinary medicine and surgery, and also a Diplomate of the American College of Veterinary Surgeons, said that almost 90 percent of equine section's YAG laser use is in relieving horses of problems that restrict their breathing.

In addition to using the laser to quickly remove nasal polyps and the horse version of a tonsillectomy, the laser is often used to remove ethmoid hematomas. These bloody sacks hang down from the animal's sinuses and can block its breathing or even deform its face. Before the advent of lasers, a procedure called bone-flap surgery was used, Dr. Keegan said. Here, the surgeon had to surgically go through the front of the animal's head to reach the sinuses. With an endoscopic laser, the laser's tip and a TV camera are inserted into the nose or sinus of a mildly-sedated horse. When the hematoma is found, the laser targets it and burns it. Nasal cysts and atheromas are removed in the same way.

Another procedure, guttural pouch tympany, can be quickly dealt with using the laser. In this condition, the space between the middle ear and the throat or pharynx enlarges greatly, restricting upper respiratory air flow. This problem can become so great that a foal's throat region can fill with air to a degree that the animal will look like a bullfrog. Previous surgical correction was invasive, costly, and dangerous. Laser treatment for this condition is quick (it can be performed in 10-15 minutes), easy (it can be performed on a standing horse under simple tranquilization), and safe (no major vessels or nerves are at risk as in conventional surgery).

A laser procedure at the other end of the horse allows removal of cysts in the uterus of mares. This procedure is also



faster with the laser and eliminates painful abdominal surgery. As the laser can completely burn away the cyst, it doesn't come back.

Lasers in Ophthalmology

Use of lasers to treat ophthalmologic problems began at the VMTH shortly after the hospital moved into Clydesdale Hall.

Three types of lasers are used, said Dr. Cecil Moore, chair of the department of veterinary medicine and surgery and director of the teaching hospital. These are the CO₂ laser, the Nd:YAG laser, and the diode laser. Dr. Moore is a MU DVM '72 graduate and formerly served as the VMTH's Ophthalmology Section Leader. He is a Diplomate of the American College of Veterinary Ophthalmologists and served as that organization's president in 1999.

Diode and YAG lasers are employed to treat glaucoma cases, the most frequent type of eye problem in animals that can benefit from the use of lasers. Tumors around the eye, the second most frequently seen case, typically are treated with either the YAG, CO₂ or diode lasers.

Most veterinary glaucoma cases occur because a defect in the eye obstructs the flow of naturally-occurring fluid from the eye causing additional pressure that can damage the eye. The diode and YAG lasers' ability to penetrate the outer tunics of the eye and release energy into

the pigmented layers allows the surgeon to destroy small parts of the fluid-producing ciliary membrane inside the eye. In this case, the laser is virtually the only method of treatment as conventional surgery is too invasive. The short- and long-term success of this procedure, Dr. Moore reports, is usually quite good, although occasionally a patient must undergo a second treatment to better adjust the fluid flow.

Techniques used for retinal detachment surgery are very similar to those used in human hospitals. In veterinary medicine, certain breeds of dogs are prone to this condition and the laser can either repair the condition or be used as a preventative measure. Here, the laser is used to "scar" weak retinal attachments, making them stronger. In essence, Dr. Moore said, the laser is used to "spot weld" the tissue in place.

The laser also prevents collateral surgical damage when destroying tumors around the eye. Tissue-destroying heat is applied precisely to surface lesions, leaving surrounding areas untouched. The surgeon, directing each laser pulse with the aid of a microscope aiming device, effectively "burns off" tumor tissue in a series of energy bursts. Bleeding is minimal as the intense heat cauterizes the ends of the blood vessels.

At the VMTH, the YAG laser is used for growths within the eye and mechanical problems that keep the eye from functioning properly, said Dr. Erin Champagne, head of the ophthalmology section. Like Dr. Moore, Dr. Champagne is a Diplomate of the American College of Veterinary Ophthalmologists.

The most common growth, Dr. Champagne said, is iris melanoma. Older cats are prone to this problem. A brown or black mass occurs on the iris (colored portion) of the eye. These dark masses are associated with an abnormal invasion and local proliferation of pigmented cells called melanocytes.

When this pigmented tumor is flat it is called iris melanosis. If the spot is raised, it is an iris melanoma. It is thought that iris melanosis is a "pre-malignant" lesion whereas iris melanoma has already become malignant.

In addition to the disease's ability to rob its victim of sight, it carries another threat to the body. Veterinary ophthal-

mologists know that an iris tumor freely releases cells into the aqueous fluid of the eye which, in turn, communicates with the blood. In humans, this can cause a high rate of metastasis (spreading) to the body. Clinical veterinary observation, however, shows something different. Although metastasis may occur, it is not

as common as in human patients. In fact, a cat with progressive iris melanosis is more likely to develop glaucoma from infiltration and obstruction of the area in the eye where the intraocular fluid usually drains.

Non-laser treatment, especially if glaucoma develops and the eye is

painful, generally requires removal of the eye. If the disease is caught early, a laser can be used to destroy the tumor cells. The prognosis here, Dr. Champagne said, is usually excellent.

These procedures can be done quickly. Typically, only one treatment of 30 minutes is needed.

VMR

the short course in Veterinary Medical Lasers

Laser "light" originates in an optical resonator containing the lasing medium, which can be gas, liquid, or solid. The type of lasing medium determines the wavelength of laser light produced. Different wavelengths have different characteristics with different uses in veterinary medicine.

Laser light is described in terms of wavelength and frequency. Wavelength is the physical distance between successive crests of waves of photon radiation and is measured in nanometers or microns. Frequency refers to the number of wave crests passing a point during a set length of time. This is reported as oscillations or cycles per second known as Hertz. The combination of wavelength and frequency determines the color of the light.

Increasing energy delivered to tissues can be accomplished in two ways. Increasing the power output of a laser by increasing Watts will decrease the time needed for vaporization. Increasing the power density can be used to achieve the same results by decreasing the total area of energy focus.

Differing types of lasers emit different wavelengths of light. The target tissue composition and the laser wavelength determine the type of tissue reaction upon impact. Laser light focused on tissue can react in four different ways. It may be reflected, absorbed, scattered, or transmitted. Both therapeutic and harmful effects are seen when laser light is converted to other forms of energy when absorbed within the target tissue. These laser tissue interactions are classified as photothermal, photochemical, or mechanical-photodisruptive depending on whether the absorbed laser energy is converted to thermal, chemical, or acoustic energy.

Photothermal tissue interaction occurs when laser light is converted to heat. Water, hemoglobin, melanin, and some proteins absorb varying wavelengths of laser light resulting in tissue heating. As tissue heats up, hyperthermia with temperatures of 42°-45° C may destroy blood vessels resulting in tissue death. As tissue temperatures increase to 50° to 100° C, coagulation occurs, proteins are denatured, and irreversible tissue damage occurs. As tissue is superheated, vaporization occurs and solid tissue is converted to gaseous vapor and smoke. Superheating of tissue with incomplete vaporization leads to carbonization known as char. This black char readily absorbs laser energy at any wavelength. Continued lasing of this black char results in further absorption of laser energy without vaporization and is converted into thermal energy.

Photochemical reactions occur when laser light is absorbed and converted into chemical energy. Chemical energy directly breaks biochemical bonds resulting in tissue destruction. A photosensitizer is a light reactive drug that can be administered intravenously, orally, or topically. The photosensitizer localizes at the target tissue site by concentrating around its blood supply. Absorption into the target tissue is enhanced due to the decreased clearance of the photosensitizer by the immature blood vessels and lymphatics in the target tissue. The photosensitizer is then activated through illumination by laser light. The




laser-activated photosensitizer biochemically stimulates the destruction of the chemically labeled tissue. This process is known as photodynamic therapy or PDT.

Clinical Uses of Lasers

Many types of biomedical lasers are used in veterinary medicine today. Lasing medium, wavelength, and frequency determine each laser's absorption ability in differing biological tissues. Light from CO₂ (10,600 nm) and Ho:YAG (2,100 nm) lasers is highly absorbed by water, making them perfect for tissue cutting, vaporization, and acoustical destruction. Because of high absorption by water, thermal injury to surrounding tissue is very superficial—CO₂ lasers only to about 0.05-0.1 mm in depth and Ho:YAG lasers to 0.1-1.0 mm. Due to such minimal lateral thermal damage, injury to surrounding tissues is limited to what you see during application of the laser energy. Early CO₂ lasers were limited to delivery by cumbersome articulated arms, mirrors, and hollow wave-guide tubes. This significantly limited the practical application of CO₂ lasers.

Solid-state diode lasers in the 805 nm, 820 nm, and 970 nm range and the Nd:YAG laser at 1064 nm are invisible wavelengths in the near infrared spectrum. These smaller, compact units emit wavelengths that are easily transmitted through small flexible optical fibers allowing use with most flexible and rigid endoscopes. The small flexible transmission fibers are made from glass silica or quartz. Vaporization of tissue can be accomplished without contacting the tissue. These transmission fibers, when trimmed or terminated in specialized tips, are used in a contact mode to accomplish cutting as well as tissue vaporization. The laser energy produced by diode lasers is not as easily absorbed by water as compared to the CO₂ laser. This can result in a greater depth of thermal injury, especially if used in the non-contact mode. Minimal thermal damage occurs when used in the contact versus non-contact mode. The shorter wavelength is better absorbed in hemoglobin, allowing efficient cutting and ablation of vascular tissues. Due to the better absorption by hemoglobin, the diode laser has better hemostasis of larger vessels as compared to the CO₂ laser.

The Argon laser at 524 nm, and the Nd:YAG laser at 532 nm, emit visible green light. Although absorbed by hemoglobin, these wavelengths will readily pass through water, gastric fluid, aqueous or vitreous humor, and urine. These lasers are used both in contact and non-contact modes to precisely cut, vaporize, and coagulate tissues that are well perfused with blood.



Serena Donaldson, Class of 2001, has worked for south Kansas City's Red Bridge Animal Clinic since she was 13 years old. She no longer cleans cages there, but is transitioning into a veterinarian. Here, she is helping a small dog with dental problems.

Experience

Preceptorship is the Best Teacher

Kellee Blackwell, Class of 2001, makes friends with some of the most important employees at the Friskies Petcare company—the cat food taste testers. Blackwell did a preceptorship at the St. Joseph, Mo. company under the guidance of Dr. Jim Mrkvicka, staff veterinarian and MU DVM '90.

Preceptorships at the MU College of Veterinary Medicine range from issues dealing with the manufacture of pet food to government regulatory concerns to life in the traditional veterinary medical clinic

A veterinary medical student's senior year is important. The student is spending time in the teaching hospital, working closely with clinicians, and seeing patients and clients. It is during the senior year that a student begins the final transition to veterinarian.

Working in a large referral hospital like MU's Veterinary Medical Teaching Hospital, where the emphasis is often on specialty medicine like cardiology and ophthalmology, is somewhat of an artificial experience, however. The rules and procedures are well thought out for this environment, but may not be reflective of "the real world" where running a business, coaxing new clients through the door, and dealing with personnel and management issues are important. The preceptorship experience, where the student spends a block of class time with a veterinary practitioner or other professional, gives the students an opportunity to explore or hone skills in areas of special interests.

Students choose from the list of preceptors with a variety of goals in mind. Some want to experience a different part of the country or a specific type of work. Others, with an eye to establishing their own practices, want an inside look on how a small business runs. Many students want to show their skills

to a potential employer.

Currently, more than 300 clinics and animal health organizations work with the College to provide students with three to six weeks' worth of practical experience. The experiences can range from working with the state veterinarian in animal health regulatory issues to a large pet food company to the everyday private clinic. While most of the preceptorships are in Missouri, some range from Martha's Vineyard to Kailua, Hawaii. Most of these student experiences are completed under the watchful eyes of MU alumni who did preceptorships while they were in school. Practice types run the gamut from small animal exclusive to equine, food animal, avian and exotics, and all kinds of mixed practices. These are opportunities to get a close look inside animal shelters, governmental organizations, and zoos.

Students can take advantage of more than one preceptorship to gain even wider knowledge. This gives those with an interest in several aspects of the profession an opportunity to "try on" different options before committing to their first job. Students can leave the College for preceptorships during their four six-to-eight-week free blocks after June in their second year of veterinary medical college.

Preceptors are normally paid a wage for their work—often their first money earned in the veterinary medical profession. The pay isn't anything to write home about, though. At about \$7-\$10 per hour, the preceptor can often do just as well at a fast food restaurant. Still, the experience is an introduction to the financial part of employment consideration. Issues such as salary negotiations, medical insurance, benefits, and profit sharing can come up for the first time in the preceptorship—giving the student time to reflect and ask questions back at school before making that fateful decision to accept the first job. Suddenly, considerations like houses, cars, taxes, and career need to be seriously considered.

In addition to job duties and compensation, lifestyle issues also come into focus. Are large corporations a better choice than the friendly family vet's one-person business? Is living in a warm Arizona climate better than the four-season, but freezing, mid-winter Midwest? If a large dose of reptile or avian medicine is in the cards, where are those animals kept as pets? Also, can a spouse find a good job in the same area?

Not an Average Experience

Veterinary medicine is a varied profession with career opportunities outside of the familiar private clinic. Many students take advantage of the preceptorship experience to look at some of these options.

Though the Central Missouri Humane Society in Columbia, Mo. is only a few miles away from the MU Veterinary Medical Teaching Hospital, the society's mission is significantly different. The teaching hospital's patients are loved and wanted, owned by people who are willing to invest in their care, and both



Kitty can't bear to look as Jenny Dubert, Class of 2001, draws blood from the cat's left leg. Watching are Drs. Shane and Melissa Brookshire, Class of 1997 and owners of the Animal Health Center of Rolla, Mo.

veterinary professional and client will devote all the time needed for the best treatment. The shelter's animals are not so lucky. Many have been abused, abandoned, and left to starve before being found. The humane society's goal is to do whatever can be done within a tight budget to place each animal in a good home. Cruel economics mean that few animals receive advanced care. The emphasis is on dealing with fleas, lice, and intestinal worms and spaying or neutering to make the animal more adoptable and help control overpopulation.

In a typical morning, a shelter veterinarian conducts about 15 spays or neuters. The one-veterinarian record for spays and neuters stands at 75 in one week. With that schedule, preceptors get a heavy dose of assisting in surgical procedures and little client contact, as most animals do not have owners. Typically, preceptors start out assisting with surgery and drawing blood for tests such as the feline leukemia assay, conducting skin scrape exams and fecal tests, and helping monitor anesthesia. Later, they can become involved with more sophisticated procedures. About 10 students each year go through the Columbia Humane Society as preceptors.

"When the students first arrive, I'm there every second to monitor their work," said Dr. Caroline Ward, last year's

Central Missouri Humane Society veterinarian and MU DVM '94. "As their proficiency grows, I monitor them less and they're given simple procedures to do on their own. This is a great learning experience and confidence builder. If there is a problem, they know that I can either fix it or talk them through it."

Because of the volume, procedures take on a quick pace, as there is always more need than time. A faster technique may mean that one more animal is available for adoption and thus saved from euthanasia. A long decision making process may mean that other animals may receive less treatment.

"That's probably the main difference in their experience here versus a standard clinical practice," Dr. Ward said. "With the extreme volume, you learn to work quickly and efficiently. It takes a week or two before the preceptors become comfortable with the pace and the procedures."

Just down Highway 63 in Jefferson City, Class of 2001 veterinary medical student Linda Kidd is getting a different look at the veterinary medical profession—from the aspect of a state animal health regulatory agency. She is working with Dr. Bretna Jones, MU DVM '86, and staff veterinarian at the Missouri Department of Agriculture. The emphasis here, as stated in a curriculum syllabus crafted

by Dr. Jones, is "to introduce students to regulatory veterinary medicine and to familiarize them with disease control programs, accreditation, and the mission of the State Veterinarian's office staff."

The curriculum's dozen objectives include establishing a working knowledge of governmental animal health programs such as the cooperative federal and state brucellosis eradication program, the federal and state pseudorabies eradication programs, poultry disease surveillance and export testing, livestock market operations and market veterinarian responsibilities, food safety and quality assurance, and writing certificates of veterinary inspection.

These programs run in association with everyday duties overseen by Department veterinarians that include disease control, animal diagnostic services, milk safety, and egg inspection. Financial aspects of the department include a beginning farmer loan program, animal waste treatment regulations, feed regulation, and livestock marketing programs. Preceptors get a taste of this work, too.

There are 10 veterinarians on the staff—three who operate from the main office, one in the state's diagnostic laboratories, and six in the field. Each preceptor gets to work in all three areas.

"Veterinarians hate to fill out forms and sometimes the paperwork seems to fall through the cracks," Dr. Jones said. "These forms, health certificates, EIA and brucellosis test charts, do help us trace disease exposure problems. It's human nature to feel suspicious about government regulations. Students who come through this program see the rationale behind the laws and share this with their colleagues."

"I didn't realize the impor-

Class Notes

50's

Gerald McEuen, DVM '58, announced his retirement from veterinary medicine. He lives in Prescott Valley, AZ.

70's

Linda Shilling Scorse, DVM '75, and her husband Daniel, became sustaining members of the University of Missouri's Jefferson Club. The family lives in Joplin, MO.

Arlen Mills, DVM '77, was named a Diplomate of the American Board of Veterinary Practitioners (food animal). In July 2000, he started a new job: Herd Health (Dairy) Extension Agent with Pennsylvania State University. He lives in Palmyra, PA.

Joseph Cummins, PhD in veterinary microbiology in 1978, has been named the chairman of the board of Amarillo Biosciences, Inc., Amarillo, TX. Dr. Cummins has been conducting interferon research since 1969.

80's

David Swayne, DVM '84, was elected president of the American College of Poultry Veterinarians (ACPV). He was also named a diplomate of the organization. He lives in Watkinsville, GA.

Sandy Dressler-Black, DVM '88, and her husband David, announced the birth of their second son, Peyton Alexander Black, born February 21, 2000. The family lives in San Ramon, CA.

90's

Nathan Lissant, DVM '90, was elected president of the American Association of Industrial Veterinarians. He lives in Springfield, MO.

Terry St. John, DVM '94, announced his engagement to Lindel Carter of Festus, MO. Dr. St. John is a veterinarian at the Tesson Ferry Veterinary Medical Hospital in St. Louis County.

Julie Adams, DVM '98, reports starting a job in a new small animal hospital in Howard Beach, NY.

Tracy L. Chinn, DVM '98, of Clarence, MO, on July 8, 2000 was married to Alan L. Myers of Norris, IL.

Charles Winslow, DVM '98, and his wife Shanda, announced the birth of a son, Clayton Thomas Winslow, born September 22, 2000. The family lives in Lamar, MO.

00's

Kara Amstutz, DVM '00, and her husband announced the birth of a daughter, Karmryn Mae, born Oct. 3, 2000. The baby's birth weight was 7 pounds, 8 ounces. The family lives in Springfield, MO.

Maluni Pagan-Lopez, DVM '00, reports that she is employed as a full-time small animal practitioner at the Pleasantville Animal Hospital, Pleasantville, NY.

Stephanie Medlock, DVM '00, has begun a new job at the Worth Bend Animal Clinic, North Bend, WA.



Not all veterinary medicine preceptorships involve hands-on practice. Linda Kidd (left), Class of 2001 got a look at the veterinary medical profession from the aspect of a state animal health regulatory agency by working with Dr. Bretaigne Jones, MU DVM '86 (right), in the state veterinarian's office in Jefferson City.

tance of these data," Kidd said. "In school we have laboratories and hear lectures about data collection, but this experience helps me see how it all fits together to benefit the public's health."

Surprises? "The whole thing," Kidd said. "You can't get the big picture about public health until you have been here."

Kidd's experience in dog kennel inspections took a dramatic step when evidence of neglect was found at one northern Missouri facility that resulted in the animals being confiscated and Kidd attending a deposition hearing for possible later criminal prosecution of the animals' owner.

Traditional Clinical Veterinary Practices

The Red Bridge Animal Clinic is one of the oldest continuing animal hospitals in the Kansas City area. When first opened 66 years ago, its south Kansas City location was more of a small village than the suburb that it is today. Clients would ride their horses to see the veterinarians.

Today, the clinic, operated by senior partner Dr. Roy Davis, MU DVM '69, boasts four veterinarians including Dr. Heather Buchanan Lewellen, MU DVM '97, and Dr. Eric Eberling, MU DVM '99.

The clinic sees approximately 8,000 clients a year; about 55 percent are dogs and

40 percent cats with the rest comprised of "the occasional guinea pig, goat, and horse."

The clinic plays host to about four preceptors a year, the latest being Serena Donaldson, Class of 2001. Donaldson was no stranger to Red Bridge Animal Clinic. At age 13, already knowing that she would be a veterinarian, she worked at the clinic cleaning cages—her grandmother driving her to and from work. Interrupted only by school, she worked at the clinic through high school and undergraduate work. "What's scary now is that many of the dogs that we are treating for geriatric disease I remember coming in as puppies," she said.

Donaldson's preceptorship program was tailored around the small animal clinical setting that she is looking for after graduation. This means an emphasis on diagnosis, treatment, and basic surgical and medicine experience. Another component of the preceptorship deals with the business aspects of the clinic. "Client relations is the number one part of this," Dr. Rob, Raduzycki, clinic veterinarian, said. "This is a people business and it's important to establish a high level of comfort with the clients while maintaining a professional relationship. We discuss this in the preceptorship, but this skill is best honed through experience."

Students also learn about practice management. During

her stay, Donaldson was part of a regular meeting, discussing personnel issues, communicating with staff and clients, leading the staff and helping to form a well functioning team, dealing with problems, purchasing equipment and supplies from vendors, representing the profession to the community, marketing the business to new clients, taxes, and money management.

Jenny Dubbert, Class of 2001, always wanted to be a mixed-practice veterinarian, like most of the clinics around her home in Mexico, Mo. Her preceptorship experience, therefore, led to the Animal Health Center of Rolla, Mo., operated by Drs. Shane and Melissa Brookshire, both MU DVM Class of '97.

As recent graduates, the Brookshires have strong ideas on how a preceptorship experience should be handled. "We want to emphasize the importance of the routine surgery and diagnostic skills that we see every day," Dr. Melissa Brookshire said. "This is something that you don't see enough at the teaching hospital. Not all diseases are the bizarre kind that typically are referred to a larger facility."

"Another important area of emphasis is how to communicate with clients," Dr. Shane Brookshire said. "It is important to listen, empathize, and know when to give them options when cost becomes an issue."

"I'm impressed with the quality of care that can be delivered in a small practice," Dubbert said. "While you do see more of the common things, there are still some of the more challenging cases. And there is more opportunity to learn because you don't have to share your cases with other students."

Serving Animals and Country

Army Scholarships Help Students Combine A Military and Veterinary Career



Each year, the US Army reviews and selects the best candidates for a four-year veterinary medical education scholarship.

In 2000, of the four veterinary medicine Armed Services Health Professions Scholarship Program scholarships, one was awarded to Troy Creason of Dixon, Mo. and another to Christina Truesdale of Jefferson City. Both are members of the Class of 2004.

These scholarships, which provide full tuition, a living stipend, and reimbursement for books and supplies, are awarded competitively based on grade point average and expertise in the sciences. Thousands of people apply for these scholarships each year. About two hundred scholarships are awarded to students in the human medicine tract.

Creason is a graduate of West Point with a major in Life Sciences. Already in the Army with an eye toward a veterinary edu-

cation focused somewhat on wildlife management, he heard about the scholarship while still an undergraduate. Truesdale was finishing her animal science degree as a ROTC cadet at Truman State University, Kirksville, when she applied for the scholarship. Like Creason, she had an interest in a veterinary medical career, although her interest is more toward the equine area.

Both come from military families and are currently reserve officers—Creason is a captain and Truesdale is a second lieutenant. Both hope to make the military a career.

"The scholarships provide a huge lift off of our shoulders," Creason said. "It's nice to not have to worry about financing our education as other students must. It allows us to concentrate more fully on our studies."

"It's also nice not to have to worry about finding preceptorships, internships, and even a job after graduation," Truesdale said. "As military officers under-

going a veterinary education, we're required each year to perform 45 days of active duty in the military's veterinary medical program also fulfills our board licensing requirements. After graduation, as part of the scholarship, we have a four-year obligation to work in a veterinary medical assignment at a military installation."

Often, the first assignment for a new veterinarian is as chief at a veterinary clinic on a military installation overseeing the health of military animals. These can include research animals, pets of military personnel living on base, and working dogs performing bomb sniffing and sentry duties. The military also oversees the health of a variety of other animals including marine creatures, mules and horses, goats, sheep, and bison. In addition, veterinarians are in charge of maintaining food safety for military personnel.

VMR



Lt. Truesdale spent an internship at the Veterinary Services facility at the historic frontier post of Ft. Leavenworth, Kansas. Part of her duties

involved helping stray animals found on the base to find new homes, including this dog. The fort's veterinary hospital was built in 1893 to care for the facility's 72 cavalry horses. Note the Airborne badge on Lt. Truesdale's uniform—indicating that she is qualified to make combat parachute jumps.



Capt. Troy Creason helps to install a radio-tracking collar on a baby black bear near Elmendorf Air Force Base, Anchorage, Alaska. The baby's mother was temporarily anesthetized by a dart gun and also

collared. Note the Engineers insignia on Capt. Creason's uniform. That will change to the veterinary emblem after graduation.

Facts About the Army Veterinary Corps



- **The Army is the only branch of military service that has veterinarians—the Air Force Veterinary Corps was merged into the Army Veterinary Corps in 1980.**
- **The Veterinary Corps is a branch of the Army just like the Infantry, Field Artillery, and Aviation.**
- **All Army veterinarians start out as captains.**
- **There are three different functional areas in the Veterinary Corps: Clinical Care, Research and Development, and Food Safety. Veterinarians take care of all three at one time or another and sometimes do two of them at a time.**
- **Veterinary corps officers usually command a staff of soldiers that are made up of veterinary technicians and food inspectors. Army veterinarians always have at least two jobs to worry about—they have to be veterinarians and leaders at the same time.**
- **The Army Veterinary Corps veterinarians serve all over the world. Today, they can be found in Turkey, Ecuador, Germany, Hawaii, Japan, Belgium, Italy, and Honduras, just to name a few.**
- **The Army Veterinary Corps has its headquarters at Fort Sam Houston, Texas, as does the Army Medical Corps.**



Watching over missouri's food supply



Dr. Stan Casteel performs a test on a possible poison in his laboratory in the Veterinary Medical Diagnostic Laboratory.

In America, we don't doubt that the double cheeseburger we order or the rare Kansas City Strip we bite into is safe. In much of the rest of the world, food safety isn't so easily taken for granted. Bacteria-infected meat is common in some emerging countries and poisoned food animals can go

undiscovered until the meat is served at the dinner table. In Europe and Great Britain, the threat of "mad cow disease" makes daily headlines.

The US has been spared these traumas through a highly-evolved system of catching problematic food before it leaves the barnyard. Food producers, government agencies, large animal veteri-

Toxicology at the Veterinary Medical Diagnostic Laboratory is part of the system designed to prevent problematic food from ever reaching the supermarket shelf.

narians, and state food safety officials continuously work together as a team to quickly identify and contain any threats to public safety at the earliest possible moment.

Part of that effort involves the toxicology section of the MU College of Veterinary Medicine Veterinary Medical Diagnostic Laboratory. When a question about the health of an individual food animal or herd comes up, this office provides the laboratory diagnosis and consultation needed to quickly determine the cause. Then, working with other team members, plans are made to quickly contain the problem and help the afflicted animals. In addition, producers facing problems receive quick, competent attention.

A Quick Response

On a pleasant summer morning last year, a northeast Missouri farmer found two of his cows dead from apparent seizures. This triggered the first response involving the food safety team. The farmer's veterinarian was called in to examine the corpses to determine if the deaths could be easily explained. They couldn't and the next step began—causing the phone to ring in

the Veterinary Medical Diagnostic Laboratory office of Stan Casteel, MU DVM '83, PhD, Diplomate of the American Board of Veterinary Toxicology, and associate professor of veterinary pathobiology. Most faculty in the VMDL, as the lab is better known, have appointments in the Veterinary Pathobiology Department of the MU College of Veterinary Medicine. Dr. Casteel heads the toxicology section.

As a veterinarian, Dr. Casteel and his colleague in the field discussed clues and possibilities. Often, simple lab tests or observation can reveal a diagnosis and plan to deal with the problem. Other times, it is not so easy and the animal has to be brought to the VMDL's necropsy facility for a more detailed examination. The two dead cows were brought to Columbia.

"As a toxicologist, the sudden deaths and condition of the bodies caused me to think that a poison was involved and suggested a chlorinated hydrocarbon screen be done on the rumen (first stomach) contents," Dr. Casteel said. "That thought was correct. The samples from the two cows were both positive for heptachlor and chlordane, two lipophilic compounds once



mad cow disease

Bovine spongiform encephalopathy (BSE), commonly known as mad cow disease, is a degenerative disease that affects the central nervous system of cattle. BSE is found in the United Kingdom and other European countries. No cases have been found in the United States.



Cows will eat lead paint and they particularly like ashes left after a structure fire.

used as pesticides. Since the levels of these compounds in animals' tissues were 0.3 and 0.2 parts per million, respectively, this legally required reporting to state public health officials."

This brought in the next level of the food safety team, led by the state veterinarian of Missouri, Dr. John Hunt, MU DVM '72.

Chlordane, one of the suspected poisons, was identified as a human carcinogen and removed from use in the US years ago. Heptachlor is also a carcinogen and, like chlordane, can disrupt the human endocrine system. Heptachlor can only be used in limited ways such as killing fire ants around utility cables.

As the source of these poisons was not immediately found, the farm's 19 remaining cows were quarantined and tested for the poisons. They were found to contain the chemicals at above the legal limits but at less than a fatal dose. While the search went on for the poison's source, a plan was developed to retest the animals at regular intervals and render what supportive and therapeutic medical care could be given.

Looking for Clues

Poisonings comprise the bulk of food animal problems seen by Dr. Casteel and staff. Since cows and other animals will often lick or eat almost anything—poisonous plants, discarded car batteries, heavy metals from old automobile mufflers, and thousands of other sources—almost anything can cause a problem.

"I can't remember how many times that I've seen people throw out Japanese Yew clippings, a common ornamental plant," Dr. Casteel said.

"Cows love to eat them, but the plants are toxic to the heart. In fact, Japanese Yew kills more cattle in Missouri than any other plant."

Usually, the second most frequent culprit is improperly stored insecticide.

Cows will also eat lead paint, and they particularly like ashes left after a structure fire. These ashes, remnants of the painted exterior, are usually a highly concentrated source of lead.

"We see other exposures such



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VMDL's reputation for
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from absorption from the skin or respiratory system, but never in the number of ingestion cases," Dr. Casteel said. "That's not to say that these cases can't be dramatic. In cases where there is confinement of the animal, such as

pigs in a nursery barn, exposure to hydrogen sulfide gas, a product of decomposition of manure, can be very dangerous to both animals and people. I personally know a case where a veterinarian died from exposure to this gas while trying to rescue someone who had passed out while cleaning out a sewage pit."

Quarantining any poisoned animal on the farm protects the food supply, but can put the farmer in a perilous financial position. From his office on the MU campus, Dr. Casteel works quickly with veterinarians in the field to determine the source of a poisoning and get rid of the hazardous materials. Since the source can be anything man-made to a poisonous plant—whose description is conveyed by Dr. Casteel to the on-site veterinarian—the team sometimes work like an old movie detective. Veterinarian sleuths even follow bovine footprints to the toxicant. Sometimes, a problem is solved not by medical means, but by cleaning up an old dump or placing old cans inside a barn.

"We find the source in more than 90 percent of the cases," Dr. Casteel said. "In the cases where we don't, it's usually because the animal ingested all of the material."

A Special Consideration: Milk

Poisons finding their way to the dinner table through meat are only one concern of the VMDL toxicology section and the rest of the food safety team. A cow can ingest a toxicant and pass it on through her milk. As milk is marketed quickly from dairy to consumer, the need for a quick response is even greater. Also, toxicants that can make an adult sick can kill a child—particularly since infants drink far more milk per weight than adults do. While the VMDL

and other agencies often work with the US Department of Agriculture in meat matters, anything to do with milk involves the Food and Drug Administration (FDA).

A frequent problem involving dairy cattle is a type of mycotoxin producing fungus, frequently aflatoxin, that can grow on feed corn. This toxin can go directly into the milk and is a known liver carcinogen. If the FDA, which watches milk at all levels of production and distribution, finds evidence of aflatoxin, a sample of the feed is sent immediately to Dr. Casteel and the VMDL for analysis. VMDL's reputation for speed and accuracy is welcomed. Otherwise, embargoes placed on milk from affected dairies could negatively affect many levels of the state's agriculture.

Not all of the milk problems come from contaminated cows. One vexing case saw cows clear of any possible poisons giving clean milk that somehow turned up with contamination before it left the farm. After appropriate head scratching and investigative work, it was revealed that a milk bulk tank was introducing the contamination.

Like beef cows, dairy cows can ingest poisons, such as chlorinated hydrocarbons, that may persist in the animal's body fat for up to six months or more.

This was the case for the farmer in northeast Missouri who found two dead cattle on an otherwise peaceful morning. The source was identified as material collected from the floor of a dilapidated house that had been used to store the outdated pesticides. The mature cows and a bull were able to reach through the broken window and lick the contents from a weathered sack.



Watching a Revolution in Lab Animal Medicine

Dr. Ronald McLaughlin
reflects on his 30 plus years
in Laboratory Animal Medicine

One of the country's most knowledgeable and respected laboratory animal specialists and researchers recently retired from his position as Director of the Office of Laboratory Animal Medicine at MU. During his career, he saw the science of laboratory animal health and use change from a research afterthought to an important and critical component of human and animal medicine with serious political and cultural overtones. What were those 30-plus years like and why did laboratory animal medicine change so dramatically? Dr. McLaughlin talks about his career with Veterinary Medical Review.

Q What attracted you to lab animal medicine?

McLaughlin The attractant was in recognizing that all useful information that makes veterinary medicine possible is derived from experimentation in animals. One doesn't have to go back far to find times with no practical and validated antibiotics, anesthetics, and chemotherapeutics—times when veterinary medicine was largely hocus-pocus and wishful thinking. Every advance in veterinary medicine in the past 150 years is attributable to animal experimentation. Lab animal medicine, even before it was named and there were specialists, was a critical part of making sure animals and their health and environment were appropriate for research.

Two opportunities in my veterinary physiology master's program contributed to my fascination. One was a lecture by a scientist using mice as models of human diseases. I was enthralled by the idea that mice could be inbred to produce thousands of genetically identical individuals, and raised in a germ-free state. Even more exciting were examples proving that mice, genetically and microbiologically defined, could be studied as models of the conditions in humans and other animals. My other arresting laboratory animal experience was performing heart transplants in sheep in a biomedical engineering course—as a model for human procedures. The students set up all of the extracorporeal blood flow and oxygenation instrumentation and did the surgery. I became convinced that lab animal medicine offered exciting, diverse, and rewarding opportunities in veterinary medicine that also could contribute substantively to the health and

welfare of humans. However, I must confess that I was still determined to be an equine practitioner until the dissolution of a Minnesota equine practice opportunity and availability of a lab animal medicine training program in the Army. I've never looked back.

Q What was lab animal science and medicine like when you started in it?

McLaughlin Laboratory animal medicine was already underway when I entered vet school, but it was in its infancy. The American College of Laboratory Animal Medicine was established as the American Board of Laboratory Animal Medicine in 1957 and it was only in 1967 that the American Society of Laboratory Animal Practitioners incorporated. The first post-doctoral training program for veterinarians in lab animal medicine started in 1959 at Bowman Gray School of Medicine, and there were only a few active training programs in the mid 1960's. I "enrolled" in the US Army's laboratory animal medicine training program at Edgewood Maryland in 1972. In the late 60's both the Army and Air Force had started training programs and between them were probably training as many specialists by 1970 as all the civilian programs combined. The MU training program, with which I am intensely proud to have been involved for 21 years, was among the earliest and is very high among the leaders in longevity and qualitative and quantitative productivity.

Much animal experimentation up through the 1960's was plagued with costs and confused results caused by experimental animal infectious diseases and environmental factors. Many institutions recognized that the integrity of their research hinged on con-



trolling these variables, and that the application of lab animal medicine expertise was the key. A positive feedback cycle between animal quality and research quality was generated. Lab animal medicine improved animal health and welfare and that increased the integrity and productivity of research. Better research results and productivity, in turn, created enthusiasm for further improvements in laboratory animal medicine and technology. Accolades for the enhanced humaneness and productivity of animal experimentation, in my opinion, are owed largely to the community of laboratory animal medicine and science.

Increases in federal biomedical research funding, regulation of animal experimentation, and antivivisectionist activism were significant forces acting on lab animal medicine at around mid-century. Each in its own way enhanced the field of laboratory animal medicine by creating additional motivation for institutions to build credible and accountable programs for humane animal care and use. Increased funding followed notable biomedical research successes in the first half of the century and built on the collaboration between the US Public Health Service and academia. Regulation began in 1966 with the Federal Animal Welfare Act. Both developed to place substantial value on quality programs and to require expertise in lab animal medicine. Antivivisection activism, and to a lesser extent regulation, had significant down side effects because lab animal veterinarians either threw themselves, or were thrown by their institutions, into the breach between the research community and the forces regulating them or trying to destroy them. My estimate is that most of any

perceived "excess regulation" has been brought about by the considerable political clout that the antivivisectionists have learned to wield.

What major changes occurred in lab animal medicine in your career?

McLaughlin So much has changed since the mid 1960's that it's difficult to pick anything special.

Laboratory animals themselves have changed in important ways. Thirty years ago rabbits, monkeys, dogs, cats, and even most of the rats, mice, and guinea pigs bred specifically for laboratory use were colossal storehouses of infectious diseases. Laboratory animal medicine 30 years ago was a rich clinical experience just to get newly received animals to a health status suitable for experimentation. Now, because of management and preventive medicine measures, it's fairly easy to acquire, from reliable sources, experimental animals free of disease.

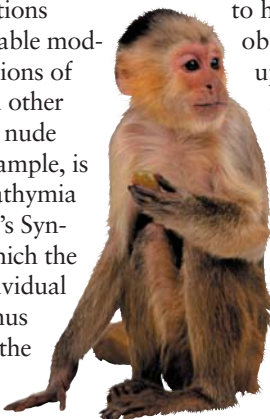
Another important change is in the degree of genetic definition of some lab animals, notably mice. Thirty years ago, much was known about mouse genetics, far more than any other mammal. Over the years much more was learned about the mouse genome and many mutations were identified and bred into appropriate genetic, usually inbred, backgrounds for study of the mutation and its normal alleles. Many mutations proved valuable models of conditions of humans and other species. The nude gene, for example, is a model of athymia or DiGeorgi's Syndrome in which the affected individual lacks a thymus and T cells, the

part of the immune system responsible for transplant rejection. This provided not only an important model for tissue transplantation, but also cancer research since cancer cells from humans and other animals would grow in nude mice.

More recently, genetic manipulation methodologies that produce "transgenic" and "knockout" genetic models created a bone fide revolution in biomedical science, and unprecedented increases in the numbers of mice being used, and advances in knowledge about how cells, tissues, and individuals develop, function, age, and die.

What's the future of lab animal medicine?

McLaughlin If I've learned anything about lab animal medicine it is that it goes where science leads it. It still seems that each answer in science presents additional questions and that will lead to continuation of existing lines of investigation. I expect continued burgeoning growth of mouse biology in the form of genetic manipulation for the study of basic biology and the search for treatment of human and animal diseases. Some limited extension of genetic manipulation into other mammalian species is likely. I think that much work in methods and safety in xenotransplantation is going to happen. That is just too obvious an outcome to pass up, and probably interest in xenotransplantation will lead to genetic manipulation in species likely to serve as safe organ donors for humans. Beyond that, who knows?



A little more about Dr. McLaughlin

Dr. McLaughlin was born in East Corinth, Maine and raised in an area in the northern part of the state referred to as the "nothwuds." His family moved to Ruthven, Iowa where he did his senior year in high school. After his freshman year of college at Morningside College in Sioux City, he spent seven years at Iowa State University getting a BS in Zoology, a DVM, and a MS in Veterinary Physiology.

Some highlights of his early career include:

- **1969** in US Army—Panama Canal Zone
- **1972** laboratory animal medicine training in the Army laboratory animal preceptorship program at Edgewood Arsenal, MD
- **1973** Chief of Veterinary Services of the US Army Biomedical Laboratory
- **1975** Director of Laboratory Animal Medicine and a staff scientist in Primatology at Hazleton Laboratories in Vienna, VA
- **1979** Director of MU's Office of Lab Animal Medicine, professor of veterinary pathobiology, and director of graduate studies in the lab animal medicine training program.

Dr. McLaughlin also served as president of the American Association for Laboratory Animal Science, the American Society of Laboratory Animal Practitioners, and Society for Veterinary Medical Ethics. In addition, he served two terms as a member of the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC) Council on Accreditation and nearly a decade on the AAALAC board of Trustees that he chaired from 1998-2000.

Though retired from MU, he still teaches a graduate course in laboratory animal medicine. He was recently named the consulting attending veterinarian at the Stowers Institute for Medical Research (SIMR) in Kansas City. The SIMR is developing a new genetically defined and manipulated mouse care-and-use program in state-of-the-art microbiological barrier facilities.



**With an
excess
of applicants
to colleges of
veterinary**

**medicine, the selection process
must be thorough, fair, and
focused only on the applicant's
merits and achievements**

It's Not Just ^{about} Grades

It's not easy getting into a college of veterinary medicine. A love of animals, the romance of a medical profession, curing the sick and injured, and working in bucolic pastures make it a popular vocational goal for thousands of high school and college students.

Unfortunately, there are only 27 colleges of veterinary medicine in the country. Every autumn each is inundated with many more applications than can ever be accommodated. Many applicants think that if their state has such a college their admission is virtually assured. Many alumni assume that the old school ties will automatically land a son or daughter a spot. Still others who enjoy a high grade point average (GPA), and are being courted by other schools, think that they will be welcomed by any institution.

Coupled with these misunderstandings is the fact that some applicants are not fully aware of demands of the profession. It's expensive and time consuming to become a veterinarian. A quality education requires a lot of study in the hard sciences. Rising tuition and compressed starting salaries can require substantial lifestyle sacrifices. Graduates who dream of owning their own practice can crash into the realities of financing and running a small business.

Given the twin concerns of a relatively

small number of student positions and a demanding professional life, colleges of veterinary medicine have had to carefully craft a process to choose who can be both a successful student and later a successful veterinarian.

Over the decades, each college of veterinary medicine has developed a sophisticated process to select the best and most appropriate students for the few seats in the veterinary medical classrooms. It is a process that tries to be fair, objective, and, ultimately, successful at graduating the best possible next generation of the profession. The process is remarkably similar among North American colleges even though each institution developed their process independently, said Dr. C.B. Chastain, MU College of Veterinary Medicine associate dean for academic affairs.

At the same time, the admissions process can be easily misunderstood, Dr. Chastain said. In addition to dealing with a vast number of applicants for a limited number of positions and trying to find students who have the ability to thrive in the profession, other considerations must be made. Colleges have ethical obligations to help select a student population that reflects the population at large. Colleges also try to select a class with a variety of students who have an interest in equine and

food animal medicine, research, industry, and other fields, as well as the ever-popular companion animal emphasis.

Over its 50-plus years, the MU College of Veterinary Medicine has created a process to select the best students. Last year, there were thousands who inquired about positions in the class of 2004 with almost four times more qualified applicants than available room. Most applicants were sufficiently bright or talented. Choosing the best from this group is not easy.

Being Selected at MU

The formula for evaluating applicants seeking admission at MU is broken into two basic components, Dr. Chastain said—an objective evaluation of the applicant's academic record that correlates with success as a veterinary medical student and a faculty-judged evaluation of non-academic characteristics considered to be indicators of a successful veterinary medical career. Both components are graded on a 100-point scale. Applicants who achieve the greatest number of points from the possible 200 are offered admission to the College of Veterinary Medicine.

For the academic component, only one-tenth of the possible 100 points is based on the applicant's cumulative undergraduate grade point average.

Surprisingly, while an overall GPA is an important indicator of a person's ability to handle the tough job of learning new concepts and ideas, other parts of a person's academic career are known to be even more essential in a successful veterinary medical career and, thus, weigh more.

The applicant's physical science GPA counts for another 25 points, the biological science GPA counts for 15 points, and the applicant's last three semesters GPA counts for 25 points.

Since students who carried fewer credit hours would have an advantage over people with larger course loads, an additional 15 points are assigned to students who carried 13 to 18 credit hours of classwork.

The final 10 points of the 100 point academic component are assigned according to the applicant's score on the Veterinary College Admission Test (VCAT). A minimal score of 20 percent is required to qualify for admission, Dr. Chastain said. Selection points are assigned to those who score above the 50th percentile.

The second 100-point evaluation, the non-academic part, is made by a four-member faculty committee chosen from the College's three departments—veterinary medicine and surgery, pathology, and biomedical sciences.

Each member of this team judges every applicant according to 10 characteristics considered to indicate success in a veterinary medical career. Every faculty member assigns each applicant up to 10 points for the 10 characteristics for a possible perfect score of 100. The scores from each faculty member in this part of the

evaluation are then averaged for every applicant. That number is combined with the academic score for the student's final score that will then determine if it is high enough to gain admission.

The faculty team makes their evaluation in each of the following characteristics:

- motivation and concepts of veterinary medicine...
- companion animal contact and experience...
- equine contact and experience...
- food animal contact and experience...
- other animal contact and experience...
- ability to communicate by written and verbal means...
- participation in extracurricular activities...
- tendency for leadership or showing initiative...
- work experience in college, and
- diversity of the individual.

Each faculty member judges every applicant based on these characteristics according to written information supplied in the student's application package. This information includes academic transcripts, letters of recommendation, work history, and other information. To help ensure fairness, information such as birthdates, ethnic origins, or religious affiliations is not included. Because relationships to veterinarians, legislators, or other special groups do not indicate personal merit, this information is also not available to the committee (except when the relationship was as a student or an employee).

Almost half of this part of the evaluation stresses an applicant's practical and varied experience with animals.

"Owning, raising, showing, training, judging, and selling dogs, cats, horses, cattle, sheep, pigs, or other species is evidence that an applicant is knowledgeable about, and comfortable around, common

domestic species," said Dr. Chastain. "However, a more important question to be answered for the Admissions and Scholarship Committee is: does the applicant understand what a veterinarian does with these species, the veterinarian's interaction with the animal's owner, and the business aspects of providing veterinary medical care?"

To clarify this and to obtain additional insight into the applicant's abilities, each applicant who is a Missouri resident and scores at least 30 of the possible 100 possible points on the academic portion of the evaluation, and scores at or above the 20th percentile on the VCAT, is invited to a 20-minute interview with the faculty team.

"Some questions may be about extracurricular activities or leadership responsibilities of the applicant that are not familiar to the committee members," Dr. Chastain said.

Scores on the 10-point criteria are based on the quality and quantity of exposure to veterinary medicine. A score of 1-4 indicates less than average exposure, 5 is considered average, and 6-10 indicates much more than average exposure. Here, for example, an applicant who shadowed a mixed-practice veterinarian for 400 hours will score higher than an applicant who raised and showed horses for 4,000 hours but did not have observational time with a veterinarian.

"Dealing with animals means more than handling animals," Dr. Chastain said. "It includes observation of veterinarians serving animal owners with differing economic means, expectations, and priorities. It also includes observation of veterinarians' business management and supervision of employees."

The faculty committee particularly looks for applicants who have experience working with a variety of animal species, are familiar with the veterinary medical profession, are community minded and have demonstrated leadership capabilities, are able to react favorably to close group interactions—frequently under stressful conditions, have developed time and stress management skills, and are sincerely motivated. A realistic evaluation of their financial situation and the cost of an education are also encouraged.

Some of the most frequently asked questions in this interview, to assess their motivation, their concepts of the profession, and quality of their exposure to veterinary medicine include:

- What type of activity do you think you would be involved in after graduation from a college of veterinary medicine?
- What are the common diseases of various species of animals?
- What would you do if you were never accepted into veterinary medical college?

Some of the faculty evaluation team believe that certain undergraduate elective courses are a non-essential, but beneficial adjunct, to the education acquired in the college of veterinary medicine. These courses include animal nutrition, animal reproduction, anatomy, animal husbandry, physiology, business or accounting, genetics, microbiology, psychology, or statistics.

"I'm frequently asked if I miss being an active clinician," Dr. Chastain said. "Although I do, the void is more than filled with the joy of watching intelligent, hard-working, and compassionate applicants enter the profession through an evaluation process based solely on personal merit."

C o p i n g w i t h Grief



New Program Helps

Both Client and

Veterinarian

Cope with

Pet Loss

Every veterinarian, skilled in the science of veterinary medicine, comes face-to-face with a client's overwhelming grief over the death of a pet. With a demonstrated love and natural compassion for animals, the veterinarian is often seen by the grieving client as a friend, counselor, and guide through this trauma.

The situation can be traumatic for the veterinarian, too, for a different reason. Psychologists and social scientists realize that the death of a pet can be a traumatic, life-changing event. Experts believe the grief that people experience with the death of a pet often parallels the experience of the loss of a human; with stages of denial, anger, depression, and finally, acceptance. Helping a client through this process is a daunting one if the veterinarian has no experience or knowledge in the science of grief.

A new group within the MU College of Veterinary Medicine is introducing student veterinarians to the psychology of grief and helping clients with terminally-ill animals better cope with the attending emotional trauma. Called TIGER for Together in Grief Easing Recovery, the group is collecting and disseminating what scientists know about the

emotional and psychological processes relating to the death of a loved one and to make that knowledge available to professionals and clients alike. The goal of the organization is to recognize that grief is a natural and healthy response where veterinarian and client can work together as a team to better come to terms with the loss.

Enter TIGER

Leading the seven-member faculty and staff TIGER team, formed last autumn, is Dr. Chad Johannes, resident veterinarian. Dr. Johannes was first introduced to the science of grief therapy while an intern at Colorado State University. He saw there that a more systematic approach to companion animal death not only benefited the teaching hospital's clients but the veterinary professionals as well. Many clients looked to the veterinarian for emotional and practical guidance in the final phase of the owner-pet relationship.

Dr. Johannes saw that, like the practice of medicine itself, the manifestations of grief have been studied scientifically and involve a series of physical, intellectual, emotional, social, and spiritual questions that have dramatic consequences to the people involved. He wanted to see

MU veterinarians have simple and practical tools to alleviate emotional pain in the same scientific way that veterinarians deal with physical pain.

"Grieving is a necessary, unavoidable, and healthy response to the loss of a treasured family pet," Dr. Johannes said. "It is important to understand that each of us experiences grief in a different way. Since grief often involves very painful and difficult feelings, many people think that their grief is 'wrong' or 'crazy' in some way, especially if it involves their pet. The idea may be reinforced by trivializing comments from others, such as 'its only a dog,' 'he had a good life,' or 'you will have other pets.'"

In actuality, Dr. Johannes said, grief is a healthy psychological response requiring expression and acknowledgement. "Attempts to suppress the feeling of grief can actually prolong the healing process," he said. "Grief is a process, not an event."

During the grieving process, pet owners may experience feelings of anger, sadness, guilt, anxiety, loneliness, helplessness, shock, or depression. Physical sensations may include crying, hollowness in the stomach, tightness in the chest, weak muscles, a dry mouth, appetite and sleep disturbances, and fatigue. Following the death of a companion animal, it is common to be preoccupied with memories or thoughts of the pet. Some even imagine that the pet is still alive.

"Many of these reactions are healthy and a normal part of grieving," Dr. Johannes said. "The important thing to remember is that there is no right or wrong way to grieve, only your way."

TIGER's effort to deal with grief takes many routes. The first effort was the creation of

three Grief Packets to help people deal with the loss of a loved pet. One packet discusses euthanasia preparation, another discusses the grief process, and the third is a Children's Grief Packet. "Each packet discusses the emotional and practical processes of grief and gives each person options," Dr. Johannes said.

"This information is based on scientific findings regarding the grieving process, most of it from the human literature," Dr. Johannes said. "Many people see their pets as quasi children and their grieving process is often much the same as that of losing a child."

The packets are not only made available to pet owners, but are the basis of the curriculum that the TIGER group uses to prepare veterinary medical students to deal with these issues. Later, the team hopes to add this instruction as a formal rotation in the veterinary medical curriculum.

The veterinarian is usually the first person to see these grief manifestations. "As part of the grieving process, a client may feel the need to share the grief and feelings with others—and the first person here is almost always the veterinarian," Dr. Johannes said. "Family and friends may take the time to listen, but occasionally, they may not be able to understand the significant role the pet had in their life or the extent of the loss. Veterinarians are in a key position to aid in the healing process."

Down the road and in coordination with MU Health Sciences, the TIGER team hopes to form a pet loss support group. The team would also like to see a small memorial garden be constructed to allow pet owners and terminally ill pets to have their last moments together in a non-clinical atmosphere. **VMB**



The Grief Therapy packets mentioned in this story are available for \$2.50, to cover postage and photocopying charges, through the MU Veterinary Medical Teaching Hospital. Please include your check with your request and be sure to include your complete return address.

Send your requests to:

Grief Therapy Packets

Attn: Dr. Chad Johannes
Veterinary Medical Teaching Hospital
Clydesdale Hall
University of Missouri
Columbia, Missouri 65211

C o p i n g w i t h G r i e f

Helping Children Deal with Death

Often, the most difficult part of grief involves young children. The death of a family pet may be a child's first experience with the loss of a beloved special friend, Dr. Chad Johannes said. It can mean the loss of a playmate, a confidant and an ally, and a steady and non-judgmental friend whose affection never varied, no matter what else changed in a child's world. In some instances, an adult's most horrific memories originate as a child from the loss of a pet.

This is why the **TIGER** team has developed a grief packet just for kids.

As with adults, the veterinarian can play an important part in coaching a child through this experience, Dr. Johannes said. While many techniques used to assist adults can come into play, there are special considerations when dealing with kids depending on such issues as age, personality, level of attachment to the pet, and experience.

Children up to age 5, for example, generally don't view death as permanent, Dr. Johannes said. From age 5 to 9, children definitely know there is a difference between life and death, but aren't clear on what causes death. It isn't until age 9 that children begin to have a "final, permanent, and inevitable" perspective on death.

"The loss of a pet provides the opportunity for parents to teach their children how to express their feelings of grief without shame or embarrassment, and to cope with their emotions in a way that brings

the experience to a healthy closure."

In **TIGER**'s training program, it is recommended that children be kept apprised of their pet's condition. "Don't wait for one big 'tell all' to begin helping children understand death," Dr. Johannes said. "Both birth and death are parts of life, and children are naturally curious about them. However, they do not need to know everything there is; tailor the information to their level of understanding."

Also recommended is to be honest with the children and use accurate vocabulary. "Never tell a child that an animal has been put to sleep," Dr. Johannes said. Instead, say that the pet has died and is dead, otherwise children may be afraid to fall asleep at night in fear that they may not wake up again, as happened to their pet.

The Final Decision

The decision to euthanize a pet can be an emotional minefield. "For many people, pets are more than just animals, they are members of the family," Dr. Johannes said. "This strong emotional bond brings great joy and comfort and companionship to our lives, but can also make the decision about euthanasia an extremely painful one."

With this in mind, the **TIGER** team put together its packet offering a guide to the pet owner for making this decision. The packet is also designed to help the veterinarian in dealing with the expected question from the pet owner: "When will I

know when it is time?"

One advantage of putting these issues in written form is that owners with acutely sick animals can read and think about these issues without having to make a quick decision in a clinical examination room. This early introduction to these concepts will allow the animal owner to discuss these issues more intelligently with the veterinarian, thus helping the owner to feel that the most informed decision has been made.

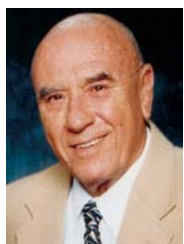
Achieving Closure

Saying goodbye to a deceased pet is the hardest of the stages of grief to overcome. Veterinarians can help their clients through this phase by suggesting one of the following symbolic ways to say goodbye.

- Make a clay impression of the pet's paw. Inscribing the clay with personal information about the pet will help it serve as a lasting memory.
- Plant a tree, bush, or shrub over the location where the animal's remains are buried.
- Join or start a pet loss support group.
- Make a donation in the pet's name to a worthy cause.
- Place some of the pet's fur in a locket.
- Place a bench with an engraved nameplate near the pet's place of burial.

up with... Catching

Dr. Louis Tritschler, right, assists a horse breeder in Colombia, South America, circa 1968.



Dr. Louis Tritschler

Retirement is a difficult concept for many successful people.

It's hard to tear away from a job, and a place, that you love.

When you go, do so quickly without looking back, letting your successor run the show and cultivate new interests. Or so the theory goes with Dr. Louis Tritschler, MU DVM '60 and retired College of Veterinary Medicine Professor Emeritis. After retirement, classroom time was replaced with time for family. Clinic work gave way to travel to distant lands. The days of working with Dr. Clarence Bierschwal in the large animal theriogenology section and its growing equine practice have been replaced with work around the family acreage.

The love of family and travel are the centerpieces of the Tritschlers' lifestyle. Early this spring the family traveled

through the Panama Canal, Nicaragua and Colombia, a place with an important earlier connection to Dr. Tritschler.

Dreams of Dairy Farming

Born in St. Louis in 1927, Dr. Tritschler's dad was an engineer and draftsman who saw his son following in his footsteps. Instead, Dr. Tritschler enrolled in the College of Agriculture at MU for half a semester before enlisting in the US Navy in the fall of 1944.

After basic training, he was assigned to the US Navy school for sonar operators.

"I enlisted in the Navy to avoid the mud of the infantry," he said. "In early 1945, I was sent to the Philippines to

the Ship Repair Unit at Subic Bay to repair sonar gear, something that I knew nothing about. Typical military. We lived in tents in the mud before they constructed barracks." Shortly after the dropping of the atomic bombs, he was reassigned to a Navy transport vessel, the *USS Storm King*.

Upon discharge, Dr. Tritschler returned to MU to continue his studies in dairy husbandry. He was now one of the thousands of veterans attending college under the GI Bill. As an undergrad, Dr. Tritschler married his college sweetheart, Billie Huddleston, a music major from Alton, Mo. "I thought she was from Alton, Illinois. That's great, I thought. That's right across the river from St. Louis. Actually Alton, Missouri is in the extreme southern part of the state and it took a four hour drive to get there."

His wish to become a dairyman was fulfilled after graduation with an assistant manager's job at the Missouri State Penitentiary's Dairy Farm near Jefferson City. The farm, run with trustee labor, milked 350 head of cows three times a day. The operation provided all the dairy products for the Jefferson City prisons. During this period of employment (1947-1951), Dr. Tritschler had the opportunity to work with Dr. Schultz, a Kansas veterinary graduate, who encouraged him to pursue his interest in Veterinary Medicine.

For the next five years, Dr. Tritschler returned to his farm, devoting his time and efforts to hog production and dairy farming. In addition to his private farming operation, he taught On-The-Farm training, a GI program, at Alton High School, Alton, Mo.

In 1956, Dr. Tritschler applied, and was accepted into the freshman class at the College of Veterinary Medicine at MU. "It was a big decision," Dr. Tritschler said. "We had two children and we didn't know if we could make it financially. Finally, we said if we were going to do it—now is the time."

Things were still rough at the school, which then was only six years old. Faculty were still making do with whatever equipment and animals they could beg or borrow. The College was housed in two buildings, Connaway Hall and the airplane hangar-type Veterinary Science Building. It was also

tough for Dr. Tritschler to get back to “hitting the books” again. That wouldn’t be the worst of it, though, for in the spring of 1958, Dr. Tritschler became extremely ill.

It all started with a high fever, headache, and drowsiness. He quickly lapsed into a deep coma. Doctors did not think he would make it and advised his wife to prepare the family. He was diagnosed with encephalitis, later identified as caused by Japanese B virus. It took three weeks for him to come out of the coma. Once released from the hospital, Dr. Tritschler was determined to rejoin his veterinary medical class as he could not financially afford to fall behind.

The faculty and his classmates helped Dr. Tritschler pick up what he had missed—often at night, on weekends and during the summer. A new problem gradually revealed itself. The encephalitis had left him with the troublesome aftereffect of word aphasia. “Words that I knew as well as my own name just would not come out. It was always proper names that I “blanked out on,” he said. Gradually, painfully slow at times, Dr. Tritschler began to catch up with his class and learned to deal with the word aphasia.

All the effort began to pay off and, in 1960, Dr. Tritschler graduated with his class and was awarded the Merck large animal award. “I got a check for fifty bucks,” he said. “That doesn’t sound like a lot now, but it was a lot of money for me back then.”

Teaching, US and South America Style

After graduation Dr. Tritschler was ready to live his goal of having a dairy farm practice, a dream that survived World War II, financial hardships, and a disease that almost killed him. Instead, the opportunity arose for him to join the MU College of Veterinary Medicine faculty in the form of an instructor in Large Animal Medicine and Surgery. “I didn’t have teaching in mind,” Dr. Tritschler said. “I wanted to start my own practice but Bush (Dr. Clarence Bierschwal) convinced me that I could make a difference at the College as an instructor. He said this institution would be important some day and that I was needed to help accomplish that. I then found myself back in school, getting a master’s in Veterinary Medicine

and Surgery, as well as teaching and handling my clinic cases.”

Things did start to change. By 1963 Dr. Tritschler was helping to build the food animal obstetrics and reproduction effort at the College—something that took off with the addition of the new clinic facility at 1600 East Rollins. In 1967 he was invited to be one of four Big Eight school veterinarians to travel to Bogota, Colombia as part of an agricultural enhancement mission under an AID program administered by the University of Nebraska.

Colombia rural areas were something out of the wild west with bad roads, poor communication, barefooted cowboys, scant electricity, and animal diseases that appeared only in textbooks back in Missouri. The mission was to improve the Veterinary School at the National University in Bogota. Farmers wouldn’t bring their animals to the Veterinary School for treatment for fear they would take home worse diseases to the rest of their herds. Four college-owned cows, intended for palpation training, ended up in BBQ pits when students decided to have a party.

“As a result, our efforts were diverted toward establishing an effective ambulatory clinic which was geared more toward preventive medicine than toward emergency calls. Reproduction problems in cattle constituted the majority of our work,” he said.

Working in Colombia was politically dangerous, too. Student riots would close the University for weeks. Radicals caught and mutilated four policemen, causing the Army to regain control by firing 50-caliber machine guns into the campus. Veterinary medical students, Dr. Tritschler noted, never got involved in these disturbances.

Things were quieter at MU when Dr. Tritschler returned in 1969 but the pace was quickening. There were more faculty, students, and programs. The block system was soon instituted and Dr. Tritschler was named as block leader for the equine block. In 1970, Dean B.



Equine surgery in the clinic at 1600 E. Rollins in the mid-1970s.

W. Kingrey moved the equine section to the new 288-acre Middlebush Farm south of Columbia. Dr. Tritschler, along with three newly-hired equine veterinarians, oversaw the development of the Equine Center. He would be the Equine Center Director from 1979 until his retirement in 1989.

Before leaving MU for retirement, Dr. Tritschler tried his hand at local politics and served on the Boone County Planning and Zoning Commission from 1976 until 1985, the last several years as Chairman of the Commission.

Life After Retirement

There was no trouble adjusting to post-College life in the country outside of Centralia, Mo. Dr. Tritschler and his wife are avid gardeners, had owned a flowershop and, as a hobby, built a greenhouse, stocked with orchids and other tropical plants.

The Tritschlers like to travel. Before and since retirement, the couple have been on numerous trips and cruises to the Caribbean, South America, Taiwan, Europe, and Canada. They try to take two major trips each year. The next trip under consideration is an auto trip through the western US.

When not on the road, there is always tree-clearing, road repairs, and visits from children, grandchildren, and great grand-children. On rainy days Dr. Tritschler enjoys refinishing furniture. “I’m busy every day,” he said. “Sometimes I think I need to get a job so I can rest.”

Alumni at Large



Hollywood Considers Dr. Czajkowski's Second Novel

Dr. James Czajkowski, MU DVM '85 and Sacramento veterinarian, has a second opportunity to see one of his books turned into a movie.

In November, Dr. Czajkowski was contacted by a Hollywood executive producer interested in optioning the film rights to *Excavation*, the second in his series of archaeological thrillers. The first novel, written under the pen name of James Rollins, was *Subterranean*. This book hit the *New York Times*' and *USA Today*'s best seller's lists and was optioned for a possible TV mini-series. By November, a quarter-million copies had been sold and it continues to have strong sales.

Excavation, which came out in July, has sold with even stronger numbers, crossing the 300,000-copy mark in its first three months of release. By Thanksgiving, it spent four weeks on the *New York Times*' list and seven on

the *USA Today*'s list.

The heroes in *Subterranean* were a pair of explorers who led a team of scientists into an extensive cavern system buried two miles under Antarctica. While still an archeological thriller, the characters in *Excavation* are unique to this book with none carried forward from *Subterranean*.

"*Excavation* opens with a Peru ice mummy exploding during a CT scan at Johns Hopkins University," Dr. Czajkowski said. "This leads to an adventure among the ruins of a lost Inca city high in the Peruvian Andes involving mythology, ancient history, biochemistry, and even the Spanish Inquisition. One reviewer described it as a cross between Stephen King and an Indiana Jones adventure, which is probably pretty much on the nose."

A third book in the archeological thriller series, now being edited for publication,

is called *Deep Fathom*. "This book will be out in July," Dr. Czajkowski said. "It concerns a deep-sea salvage team who explore the wreck of Air Force One in the middle of the Pacific, leading to murder and mayhem, battles under-sea, chases across sunken ruins, strange crystals, Polynesian mythology, and theories of Dark Matter and the expanding universe."

Dr. Czajkowski is currently researching his fourth 'James Rollins' title, tentatively titled *Amazonia*. "It will be the biggest in scope yet," he said.

Literary success has impacted Dr. Czajkowski's veterinary practice. "Unfortunately, I sold my clinic to a corporate group since I could no longer meet my writing deadlines and still manage both the medicine and business sides of my practice," he said. "I still work at the same clinic, but only on a part-time basis."

When will we know if *Excavation* will reach the silver screen? "Who knows?" Dr. Czajkowski said. "Hollywood's a fickle town."

Childers and Moore Win Faculty-Alumni Award

The first pair of College of Veterinary Medicine winners of the University of Missouri Faculty-Alumni Award for the new century were Dr. Thelbert "Bert" Childers Jr. of Dallas, and Dr. Cecil Moore of Columbia.

Faculty-Alumni Awards, first presented in 1968 by the MU Alumni Association, recognize the achievements of faculty and alumni. Assistant, associate, and full professors are considered for their work as teachers, researchers, and administrators. Alumni are considered for both their potential and actual accomplishments in professional life and service to their alma mater.

Dr. Childers, earned his bachelor's degree in agriculture from MU in 1965 and his doctorate in veterinary medicine from MU in 1967. After graduation, he practiced veterinary medicine in Kansas City before starting his own practice in Smithville, Mo. and, later, in New Jersey. He moved to Dallas in 1972 and started his own practice, the Lovers Lane Animal Hospital, which he operated until he retired in 1997. He is currently president of the Dallas-based Texas Society for the Prevention of Cruelty to Animals.

Dr. Childers is a past president of the Jefferson Club's board of trustees, a MU program to fund worthy projects, and served on the volunteer steering committee the MU College of Veterinary Medicine's 50th Anniversary Endowment Campaign.

Dr. Moore, who lives in Hallsville and is a professor of veterinary ophthalmology, is chair of the MU Department of Veterinary Medicine and Surgery and director of the Veterinary Medical Teaching Hospital. He earned his doctorate of veterinary medicine from MU in 1972 and has given numerous scientific presentations to national and international audiences. Dr. Moore also has written dozens of articles, book chapters, and refereed publications.

Paul Nicoletti Receives MU Alumnus of the Year Award
Paul Nicoletti, DVM '56, was the 2000 recipient of the College's Alumnus of the Year Award. The award is presented by the University of Missouri's Alumni Association and recognizes a distinguished graduate. The veterinary medical alumni award has been given each year since 1984.

Dr. Nicoletti won the Uni-



Dr. Bert Childers



Dr. Cecil Moore

versity of Missouri Alumni Association's Distinguished Alumni Award in 1987.

Dr. Nicoletti was born in Goodman, Missouri. His first position after graduation as a DVM was with the US Department of Agriculture in Springfield, Missouri. After graduate studies at the University of Wisconsin-Madison, he was named the USDA's regional epidemiologist for the Northeastern US. In this capacity he conducted field investigations of brucellosis, a cattle disease. Much of his later scientific publications are on this subject.

From 1968-1972 he served as an epizootiologist in Iran for the Food and Agriculture Organization of the United Nations. His duties included training local governments in the identification and treatment of animal diseases as well as developing provincial diagnostic laboratories. In

1972 he returned to work for the USDA until his 1978 appointment as a professor of pathobiology at the University of Florida College of Veterinary Medicine. He is a professor in the Department of Pathobiology there.

Fischer Named Director of Wildlife Disease Study

John Fischer, DVM '86, was appointed director of the Southeastern Cooperative Wildlife Disease Study (SCWDS), University of Georgia, Athens.

He was also appointed as associate professor of pathology in the College of Veterinary Medicine there.

He received his PhD in Veterinary Pathology from MU in 1992.

SCWDS began in 1957 and serves the wildlife resource agencies of 16 southeastern states (including the Missouri Department of Conservation), Puerto Rico, the US Department of Agriculture, and the US Department of the Interior.

Dr. Fischer has been with SCWDS for eight years, first as a research associate and then as an assistant research scientist. For the last four years he has been the supervisor of the organization's Diagnostic Section.

Dr. Fischer's wife, Lynn Beckmann, received her DVM from MU in 1985 and her PhD in 1991. She works as an epidemiologist with the Georgia Division of Public Health.

Dr. Fischer represents the United States to the Wildlife Working Group of the Office of International Epizootics. This group is responsible for addressing the concerns brought by 155 member nations throughout the world about all aspects of diseases in wildlife.

VMR

In Memoriam

James Kennie Farrell, DVM '50, Boonville, Mo., died January 22, 2001 at the Missouri Veterans Home in Mexico, Mo. He was born March 25, 1920 at Dyersburg, Tenn., the son of Dee and Delia Robinson Farrell. He married Lucille Chapple on March 20, 1943 at Columbia, Mo. Dr. Farrell served in the US Army with the field artillery from 1943-1946 and spent one year in Japan with US occupation forces. He graduated from the MU College of Veterinary Medicine in 1950, the first class to receive the DVM degree. After practicing for almost three years in Moberly, Mo., he joined the Boonville Veterinary Hospital practice of Dr. F.E. Coley. Dr. Farrell retired from there in the early 1990's. He was a life member of the Missouri Veterinary Medical Association and American Veterinary Medical Association, served as the MVMA president in 1958, and was named Veterinarian of the Year in 1969.

Jesse Hartley, DVM '50, died January 3, 2001 in Springfield, Mo. at the age of 74. He was born April 18, 1926 in Bolivar, Mo. and served as an officer in the US Navy during World War II. Dr. Hartley received his agriculture undergraduate degree from the University of Missouri in 1946 and his DVM in 1950. He married Vivian Jenkins and the couple had two sons, Jesse Wilson and James Julian. Dr. Hartley was a long-time private practitioner in the Springfield area. He also served with the US Department of Agriculture and was a Program Review Officer for the Food Safety and Inspection Service.

Grant B. Terrell, DVM '52, Geneva, Ill., died Dec. 29, 2000 at the Foster G. McGaw Medical Hospital of Loyola University Medical Center, Maywood, Ill. Burial was in Sweet Springs, Mo. He was born April 25, 1925 in Blackburn, Mo. and served as a member of the US Navy during World War II. Dr. Terrell retired from the US Department of Agriculture as an animal care specialist in 1988. He is survived by his wife, Doris; son Grant David Terrell of West Dundee, Ill.; and daughter Linda Terrell-Maza, Overland Park, Kan.

Lewis Blackwell, DVM '54, Owensville, Mo., died March 25, 2001 in Jefferson City. He was 77 years old. He was born April 16, 1923 at Red Bird, Mo. and married Margery Pierce on Dec. 24, 1947. Dr. Blackwell served in the US Army during World War II. After graduation from the MU College of Veterinary Medicine in 1954, he served the Gasconade County, Mo. area until 1992. He is survived by his wife, son Randy, and daughter Denise Jennings.

Gary Wayne Prewitt, DVM '73, Thayer, Mo., died Oct. 10, 2000 at Couch, Mo. He was born June 20, 1948 at Thayer. On August 11, 1973, he married Jo Beth McMurtrey. Dr. Prewitt practiced for five years in West Plains, Mo. before moving in 1978 to Thayer, where he established the Thayer Veterinary Clinic. A past president of the Missouri VMA, Dr. Prewitt also performed veterinary work for the Ozarks Regional Stockyard. He owned a beef cattle operation with his family. Memorials may be made to the Thayer High School Band Uniform Fund, 401 E. Walnut, Thayer, Mo. 65791.



It's Wednesday and the cattle sale barn is busy behind the Bull Pen Cafe on the east side of Columbia, Mo. on old Highway 40. Trucks and stock trailers are parked door handle to door handle. Cattle sellers and buyers from all over mid-Missouri, and as far away as St. Louis, crowd together to inspect, haggle, and purchase. It is a gathering of a profession where everyone knows everyone else and hasn't changed much in a century.

There's no question about where to eat breakfast or lunch. Fronting the sale barn on the highway is the Bull Pen Cafe. For half a century, the cafe has been the place where stockmen, and a few politicians and lawyers, gather to eat, socialize, and gossip. It is also where many MU College of Veterinary Medicine large animal students got their first real taste

of the industry at the working level. In years past, breakfast at the Bull Pen began many ambulatory rounds. Freshly scrubbed third- and fourth-year students rubbed elbows with veteran cattlemen over eggs and bacon, soaking in the lore, manners, and personality of the industry. These youngsters got an out-of-the-classroom course in becoming known and accepted in an old fraternity. And unlike other Columbia restaurants, no one flinches if you show up with mud on your coveralls and boots after a long day in the field.

It would be hard to find a more regular Bull Pen customer that Dr. Dave Fenton, staff veterinarian for the sale barn and MU DVM '75. Dr. Fenton started his professional career in 1965 as a Columbia high school sophomore scooping manure in the sale barn. Part of the deal was

breakfast and lunch at the Bull Pen and the rest helped him pay for his DVM education.

Dr. Fenton's family is one of the oldest in mid-Missouri—the family homestead's burial plot has death dates as early as 1810.

Dr. Fenton's interest in veterinary medicine started by listening, at the Bull Pen Cafe, to the stories of Dr. Jack Vaughn, MU DVM '58 and veterinarian for the sale barn in the mid-1960s. Later work for Dr. Robert Kinkead, MU DVM '67, convinced him to go the MU College of Veterinary Medicine.

After graduation, Dr. Fenton became a partner in the Creasy Springs Road Columbia animal hospital and in 1978, helped build the practice that became the Rolling Hills Veterinary Hospital. Dr. Fenton sold his interest in that operation to Dr. Gary

Vroegindewey, MU DVM '78. In 1981 he concentrated on managing the family farm and performing veterinary work for some cattle interests. In 1993, he purchased Dr. Vaughn's practice and became staff veterinarian at the sale barn, bringing him full circle in his career.

It doesn't take long for the chairs around Dr. Fenton's table to fill during breaks from work. True to the sign over the cafe's front door, friends and clients "come to bull" with Dr. Fenton who, invariably, is "doc."

The Bull Pen Cafe is more of a social experience than a mere meal. Given his long years of experience at the cafe, Dr. Fenton knows all of the large animal practitioners and cattle owners and most of the agricultural and political types that pass through the cafe's doors. The talk is about cattle prices, the



Dr. Dave Fenton, right, staff veterinarian for the Columbia sale barn and MU DVM '75, enjoys lunch and the company of friends at the Bull Pen Cafe.

with the Bulls

weather, popular culture, and politics...lots of politics. Dr. Fenton estimates that 80 percent of people in the cafe are regulars. Many congregate to socialize and gossip in the morning's Bull Pen Breakfast Club and mid-morning's Card Club.

And then there are the celebrities. Dr. Fenton walked in one day to see country music star Jeff Foxworthy having breakfast. Willie Nelson, Merle Haggard, George Jones, and Chad Brook have done the same. That's nothing new, though. Shortly after the Bull Pen Cafe opened in 1949, rock and roll pioneer Chubby Checker enjoyed a meal while passing through town on old Highway 40. Those were the days when the Bull Pen was on the outskirts of town and operated a DX gas station for tourists on their way to St. Louis. The outward appearance of the

Bull Pen has changed little since those early days, save for a bigger-than-life plastic cow (with the word EAT on its side) on the roof that was taken down years ago. The giant red neon BULL PEN CAFE sign has hardly been turned off in five decades.

Inside, the decor still has the look of a classic diner. A dozen red vinyl-topped stools sit in front of a cafe Formica counter. Behind the counter are aluminum cupboards full of homemade pies, cow dolls, and cigarettes. There are four coffee makers.

From the varnished pine board walls hang a variety of artwork—bull horns, photos of country music stars, shots of long-ago local baseball teams, and a sign showing the mileage from the Bull Pen Cafe to other sites of interest. Yellowstone National Park, the sign proudly says, is 1,240 miles away from the

Bull Pen Cafe in the days before the Interstate highway.

If the cafe's decor has a bovine motif, so does the menu. Traditional cafe favorites, country fried steak and biscuits and gravy, are joined by Moo Moo Hash-browns and the Bull Burger. Still on the menu is a Brain Sandwich, something that could cause European visitors, terrified about "mad cow disease," to flee back to the Old Country.

But then, such visitors would probably never appreciate this piece of Midwestern Americana that is becoming all too rare in today's fast-food franchise world.

And about the cows out back. As one visitor quipped, "Hey, at least you know the meat is fresh." **VMR**



Breakfast, Cattle and The Wall Street Journal

Dr. Linus Huck, MU DVM '73, who operates an equine practice near Cape Girardeau, Mo., remembers the Bull Pen Cafe, too. He and his fellow large animal students would stop there each morning before ambulatory rounds. The MU Veterinary Medical Teaching hospital had between four and five trucks in the early seventies and covered territory from Moberly in the north to Jefferson City in the south and almost to Kansas City and St. Louis.

"Our ambulatory clinician was Dr. Jim English," Dr. Huck said. "A great instructor who provided us with great hands-on experience, but would spend breakfast worried about his financial investments. Instead of talking about animals, he would bury his nose in the Wall Street Journal, which was a little different in the Bull Pen Cafe with all of those farmers around."



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