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SPRING-SUMMER 2002 News and trends on veterinary medicine and the human•animal bond.

P r e s e r v a t i o n

Educational institutions have an obligation to educate and to envision new discoveries that will benefit the public and make those miracles happen. The University of Missouri College of Veterinary Medicine has another duty: preserve the lives of animals. This most often occurs in the traditional way—a veterinarian intervening in a disease that threatens a cherished companion. It also occurs when people who love animals band together to do what is needed to save them.

Little Dog, Big Odds



Ruffy

Ruffy was just an average dog out for a walk when crushed by a passing pickup truck. He was too much of a family member to give up on easily. His recovery would generate one of the thickest files in the medical records unit of the University of Missouri College of Veterinary Medicine.

It was a freak accident in which no one was at fault. Ruffy, a little mixed-breed dog, was getting his usual walk with owner Bob Clarke on a rural Rogers, Arkansas cul-de-sac and darted toward the sound of barking dogs just as a pickup truck drove by. One wheel crushed the lower half of Ruffy's body and the little dog was briefly dragged along the street.

Both the driver and owner were horrified. They loaded the unconscious dog into the truck for a fast trip to the veterinarian. The driver's eyes welled up with tears as they drove.

On the examining table, the injuries couldn't be more severe. From the midpoint of his back rearward, the little dog had been shattered. The veterinarian, Dr. Dennis Meenen, had seen this dog many times before—in fact, he had been instrumental in placing the stray with the family

a decade before. Now, that happy ending seemed long ago—the current prognosis couldn't be more grim.

He told the family that Ruffy's injuries were severe and his only hope—slim hope—was at the emergency and critical care section of the University of Missouri College of Veterinary Medicine where Ruffy could receive specialized care. This option, he told the family, would be emotionally draining and would carry no guarantee of a good outcome. The other option was to humanely end his life there, saving him more pain.

Bob and his wife Nancy listened to the ramifications of pursuing treatment, looked at Ruffy and made a decision.

"Ruffy had come to us just at the time when we needed him," Nancy said. "Our children had just left home and he had filled our empty nest. We've had many dogs, but this one has such character and personality—we've never had a dog that was so much a part of our family. We did not want to lose him or see him go out in pain."

That decision put things into motion fast. As Ruffy would not have survived a car trip from Rogers to Columbia, Mo., he was medically stabilized in a two-hour surgery. The dog was then loaded onboard a chartered plane with Bob for the trip north to MU. As the plane left Rogers, Dr. Meenen wasn't sure that the little dog was going to make it. Bob cried during the flight. Nancy followed by car with daughter Windy who also cried during the five-hour trip.

A Mutt's Mutt, A Survivor's Survivor

The accident wasn't the first time that Ruffy faced long odds. Ten years ago he was an injured and starving puppy

with mange found wandering in a Wal-Mart parking lot. A Samaritan picked him up and dropped him at the office of Dr. Meenen, a veterinarian at the Prairie Creek Veterinary Hospital in Rogers.

It didn't take much of an examination to realize the challenge that Dr. Meenen would have in finding a home for the abandoned little dog. Besides the medical problems, the little tan and brown shaggy dog was heavily infested with fleas, terrified of people, and hopelessly indecipherable as a breed—basically, a mutt's mutt. A quick trip to the shelter would have been easy. Dr. Meenen, who gets more than his share of strays, doesn't give up on any of them—even the long shots like this one. He formulated a plan for the little dog.

As the little dog healed and grew stronger, the veterinarian began working on acknowledged animal lovers Bob and Nancy Clarke. Dr. Meenen, months earlier, had put down the Clarke's two treasured dogs and thought that they would give the little orphan a good home. "Initially, we felt like we'd been through such a trauma losing our two dogs that we didn't want another one," Nancy said.

Dr. Meenen quietly persisted for three weeks, finally convincing the Clarkes to just look at the dog. Nancy said her heart melted when she saw the shy little dog, cringing in his cage. The little dog joined the Clarke family that very day.

It was Bob who named Ruffy—the name is a short version of Rufus Flealeg, a name given to the dog because of his constant flea-scratching during his first week in his new home.

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P R E V I E W S

Why Pets Are Abandoned To Shelters?

The numbers of animals abandoned to shelters is astonishing. A MU College of Veterinary Medicine professor has studied animal behavior and sees a major, unspoken, cause.

Beyond the End of the Road

Some retired racehorses have little value except as meat for the dinner tables of Europe and Japan. To some Missourians, this is too ignoble of an end for these elegant creatures.

What Dr. Odendall Knows

One member of an elite group of dedicated investigators is making it his life's work to scientifically measure how pets make people feel good—and can lower a person's blood pressure, positively change body chemistry, and enhance the human body's immune system.

Looking Forward to the Next Generation of Partners

The University of Missouri College of Veterinary Medicine's friends are legion. A new member of the College staff is looking forward to joining this group for the improvement of companion and production animal health in Missouri.

COMMENTARY: DR. JOE N. KORNEGAY

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*Dr. Joe N. Kornegay
Dean, College of Veterinary Medicine*



Is There a Hidden Reason Why Pets Are Abandoned To Shelters?

Missouri Veterinarian and MU College of Veterinary Medicine Professor Has Studied Animal Behavior and Sees A Major, Unspoken, Cause

Nobody wants to see a healthy cat or dog in an animal shelter. Cruel economics—not enough money to feed and medically care for such overwhelming numbers—means that many of these animals have been given a death sentence.

Several organizations are searching for ways to reduce these numbers—most deal with pet overpopulation. Some newspapers and TV stations publish photos of animals in shelters hoping that a kind heart will be moved to adopt an animal into a stable home.

A specialist in the scientific field of animal behavior—one of only a handful of veterinarians so recognized in the US—thinks that there is a hidden, unspoken reason why so many pets are ending up in shelters. And, if this reason can be dealt with honestly and directly, a major cause of animals going to shelters may be better addressed.

A Hidden Reason for Pet Abandonment?

When asked why they are abandoning their pets to an animal shelter, many people say it is because they have become allergic to the animals or that they are moving to a new house and there is no room for the cat or dog. Dr. Debra Horwitz, a St. Louis veterinary practitioner and adjunct assistant clinical professor at the University of Missouri College of Veterinary Medicine, believes there could be another reason. Dr. Horwitz, who specializes in and teaches an animal behavior course at the College, thinks that it is the animal's perceived inappropriate behavior.

Dr. Horwitz has been specializing in the field since the early 1980's and is one of only 29 veterinarians in North America who are board certified in veterinary behavioral medicine. Her book on the subject was published in June and she lectures to animal owners and veterinarians across the country.

"To give an animal up because of behavior problems is really hard," Dr. Horwitz says. "People feel that they are at fault. Often they believe that the animal will not exhibit the behavior in another home so they tell the animal shelter something other than the real problem in hopes that the animal will be adopted."

Common actual behavior problems in dogs and cats are usually aggression, house soiling, disruptive behavior, separation anxiety, fear-based behavior, and compulsive behavior. Dr. Horwitz believes that many of these problems can be overcome once they are identified and dealt with in a treatment plan.

There are no hard numbers about how many animals are put into shelters or put to sleep because of behavior, Dr. Horwitz said. The total numbers of animals left to shelters, though, are staggering. According to the American Humane Society, 18 million animals—about 15 percent of the country's 43 million dogs and 75 million cats—end up each year in shelters. Most are euthanized. Nine thousand animals were humanely destroyed in St. Louis County alone last year with about that same number on the other side of the state in Kansas City.

Behavioral House Calls

Dr. Horwitz became interested in animal behavior while a private practice veterinarian in the early 1980's and just after graduation from veterinary medical school. Some of her clients seemed unable to understand their animal's behavior or lamented that the animal didn't seem social or friendly enough. Many times this led to the owner giving up and taking the animal to the local shelter.

This puzzled Dr. Horwitz. Unfortunately, veterinary medical schools of the day offered little insight into this phenomenon. Dr. Horwitz decided to pursue her interest study behavior in any way possible. After reviewing the medical literature then available, and attending seminars and college classes on behavior, she began making "behavioral house calls" to help pet owners with their problem animals.

Often, what she found was not bad dogs and cats, but animals acting normally, from their point of view, that were misunderstood or deemed undesirable by their owners. Cats soiling a carpet may not have an adequate litter box. A dog with a tendency to bite visitors may be fearful of the sudden ringing of a doorbell or strangers entering the house.

"A lack of "cross-species communication often contributes to problem behaviors," Dr. Horwitz said. "We're talking about two different species here," Dr. Horwitz says. "One has a verbal language and the other doesn't. For example, a



When not teaching animal behavior to future veterinarians at the MU College of Veterinary Medicine, Dr. Horwitz maintains a St. Louis private practice that specializes in behavior cases. Dr. Horwitz is quick to point out that dealing with animal behavior is different than animal training. The goal of her work is to enhance the human-animal bond, thus making the relationship more emotionally beneficial for both parties, not just teach a dog to roll over.

dog chewing the furniture may not have appropriate outlets for play and exploration or could be suffering from separation anxiety."

Dealing with underlying causes can often lead to a direct and permanent solution. "Owners were relieved to find that there is a reasonable explanation," Dr. Horwitz said. "It changed the entire relationship that neither the owner nor the animal were at 'fault.'"

The visits also revealed that owners sometimes had inappropriate expectations of the animal-human relationship. "Some cats are really cuddly and some aren't," Dr. Horwitz said. "Like kids, pets have personalities. Sometimes it is the owner who may have to alter an expectation."

Dr. Horwitz immediately saw the need for not only more sound veterinary medical scientific data in the subject, but a need to educate the next generation of veterinarians on ways they can better help their clients with animal behavioral problems. Dr. Horwitz knew that veterinarians could be the first, and probably only, line of defense standing between a problem animal and its final trip to a shelter.

An Emerging Specialty in Veterinary Medicine

Today, she is only one of 29 veterinarians recognized as a board-certified specialist in the field of veterinary behavior by the American Veterinary Medical Association. To become board certified, a veterinarian must have extensive post-graduate training and experience, and pass a credential review and examinations set by the given specialty group.

It's an emerging field of scientific study that is just beginning to find ways to help. Specialists help farmers and ranchers understand agricultural pests and predators, and to more efficiently breed and raise high-quality livestock. Animal behaviorists also design healthy habitats for animals in zoos, aquariums, and laboratories.

Animal and animal behaviorists also study animal behavior to enhance our knowledge of human physiology and psychology. Studies of animal behavior, combined with recent research on the brain, have increased what we know about how the central nervous system works. Animal research enhances our understanding of human disease and aging.

Animal behaviorists today are also providing grief counseling for owners and pets. "Companion animals," Dr. Horwitz explains, "may become depressed when another family pet has gone. Some pets react to the loss of the companionship. They may also react to the owner's grieving of the pet." Specialists help find ways owners can help a surviving pet overcome its depression, which may result in lost appetite, anxiety, or other symptoms.

Pet owners, too, grieve when a beloved pet dies. Often, the animal is a "child substitute" in the family. Animal behaviorists are beginning to look at ways to allow people to talk about the pet, about the relationship, and grieve their loss. Therapy encourages patients to do things, such as having a portrait of the pet painted, to memorialize their lost friend, Dr. Horwitz says.

For now, however, Dr. Horwitz would be happy to help owners and pets resolve their problems with the hope of seeing fewer pets ending up in animal shelters.

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Beyond the

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Some retired racehorses have little value except as meat for dinner tables in Europe and Japan. To some Missourians, this is too ignoble of an end for these elegant creatures. These people have sacrificed their time and money to give these equine athletes one more chance to be a horse again.

It looked like the end of the road for the dark brown thoroughbred from Illinois. Injured, hungry, and neglected for months, the horse waited in a lonely paddock near a Kentucky racetrack. A racehorse who had won hundreds of thousands of dollars for various owners, age and injuries rendered him no longer competitive. His racing career seemingly forgotten, the crowds had gone on to cheer another winner. As some like him, he had little value now that he couldn't bring in a purse. He ended his career by breaking his knee during his final race—an injury that often results in a death sentence for many racehorses.

Not all retired racehorses come to this end. Many go home to their loving owner's pastures to stud, become brood mare, or just live out their days. Other owners do their best to place the horses in new homes. Some horses, though, fall through the cracks—a depressing fall from grace from the winner's circle. There are stops along the way for horses on

the downside—a succession of owners, cheaper tracks, and shabbier barns. A few are abandoned.

The dark brown horse was waiting for wholesalers who frequent racetracks looking for injured or non-competitive horses to re-sell as food animals. It is estimated that more than 73,000 horses were sold to slaughterhouses in the United States, Canada, and Mexico in 2000.

The meat from these horses is exported to France, Japan, Italy, and Belgium for human consumption where it is considered a delicacy. In Italy, *stufato di cavallo* and other horsemeat dishes are enjoyed with a glass of Chianti. Little to no horsemeat is eaten in the United States. Outbreaks of foot-and-mouth disease and bovine spongiform encephalopathy have caused short-

ages of various types of meat overseas. As a result, horsemeat has increased in value.

The dark brown thoroughbred had a bit of racing luck left to him. Former trainers and owners remembered the ten-year-old—a veritable grandpa on the racing circuit—as a gentle and laid-back horse. Digging into their wallets, they paid \$600 for the horse—a few bucks more than the wholesalers—and started him on a journey to the rolling hills of mid-Missouri where he could live out his days as a horse again.

The Last Furlong?

Few American pleasure riders, and fewer non-horse people, know that horses are sold for food. The process from finish line to dinner table usually starts when non-

competitive horses are sold directly to meat company buyers or through livestock auctions.

Retired racehorses may be more prone to be sold for their meat. Due to the belief that they are bred and trained for one thing—racing—they can be passed over by auction buyers looking for a weekend riding horse.

Horses touch Americans in unique ways that makes their sale as entrées difficult to accept.

Twooey was on the road to a dinner table in Europe or Japan. Instead, with help from friends, the road led to the rolling pastures of mid-Missouri and the care of Robin March.

Horses as food animals have become an emotional—and contentious—political topic. Recently, numerous state and federal legislative efforts have sought to outlaw the practice. However, there is another side to this issue. The American Horse Council (AHC) and American Association of Equine Practitioners maintains that forbidding the processing of horses could ultimately hurt the welfare of the animals.

The international market provides a price floor within the equine industry that ensures every horse has a baseline economic value. The AHC says that removing that option would take away a practical, and humane way, for animals owners to dispose of unsound animals. This could cause overpopulation and neglect. Additionally, the cost of paying a veterinarian to euthanize a horse and a shipper to transport the horse's carcass to a rendering plant may be too expensive, particularly if several horses are involved. The disposal of a horse's carcass is an environmental concern, also. In many areas, state and local laws make it illegal to bury a horse on private property or dispose of it in a landfill. Some horse owners with limited economic resources may find the expense of such euthanasia and disposal prohibitive, increasing the likelihood of neglect.

The American Association of Equine Practitioners (AAEP) is also worried that a ban on the production of horsemeat may increase the likelihood for abuse. Such a fate is worse than humane euthanasia at a US Department of Agriculture-regulated processing facility, according to the association.



End of the Road



Horses are part of our history—helping the cavalry save the pioneers or riding into the sunset with the hero and heroine. Unlike traditional food animals, horses are considered intelligent and have personalities. A cow will never nudge you and run away, hoping that you will follow and join in the fun. A horse will come back to a fallen rider, just to make sure that everything is okay and say, “I’m sorry.”

Many people have decided not to let retired unwanted thoroughbreds go so easily, and have bonded together—often at great personal expense—to buy these animals and provide them a dignified retirement.

One of the first groups to offer an alternative to the wholesalers is the nonprofit Thoroughbred Retirement Foundation (TRF) of Shrewsbury, NJ. Established in 1982, it has become the nation’s largest thoroughbred rescue organization. TRF purchases thoroughbreds from auctions or directly from the track. These horses are then re-trained so that they can be ridden by average riders, and then placed with new owners. Horses who cannot be trained or have permanent injuries go out to pasture for the remainder of their days on a number of TRF-affiliated farms.

The racing industry is supporting TRF. A growing number of tracks are partnering with the organization, and others, to develop safety nets for horses who can no longer race—among them, Philadelphia Park, Pimlico, River Downs, and Finger Lakes. The National Thoroughbred Racing Association has asked TRF to administer its Racehorse Adoption Referral Program (RARP).

Hundreds of horses have gone through TRF programs. Some are champions whose distinguished careers could not protect them from a last trip to a slaughterhouse. Others are just hard-knocking racehorses who did their best and then had nowhere to go.

TRF works with about a dozen satellite farms to house and heal abandoned thoroughbreds. The newest is the Out-2-Pasture farm near the Missouri River town of Lupus (population: 29).

Missouri’s Home for Unwanted Racehorses

Out-2-Pasture is a century-old former cattle ranch populated with a variety of rescued dogs, cats, sheep, chickens, pot-bellied pigs, goats, and other happy critters. It sits among trees and rolling hills and is owned by Zac and Robin March. Zac is director of Information Technology at the University of Missouri College

of Veterinary Medicine and Robin teaches biology at the MU College of Arts & Sciences.

They bought the farm as part of a dream to help save animals. They got involved with TRF about two years ago after reading a magazine article on the organization. The two dozen horses on their farm have come mostly through the TRF and the small family has dug deep into their own pockets to provide for the animals. So far, they have rehabilitated and placed six horses into new homes. Some of their horses are too injured or emotionally scarred ever to be released as pasture or riding horses. They will stay at Out-2-Pasture as part of TRF’s—and the Marchs’—commitment to providing lifetime care for these animals.

It’s not always easy to retrain a retired racehorse. The first horse to be adopted by TRF had never known affection and was wary of human contact. A young volunteer sat with her, day after day next to the grain bucket, and the horse had to come close to her in order to eat. The three-year-old filly is now sweet-natured and loving, adored by her new owner.

The Out-2-Pasture Farm is one of several satellite TRF facilities where small farm owners provide care and board for a modest stipend. The farm is the foundation’s most western satellite—and usually where the worst cases are sent because of its proximity to the University of Missouri’s College of Veterinary Medicine.

Twooey Becomes a Horse Again

The dark brown thoroughbred, now nicknamed Twooey, was Out-2-Pasture’s most challenging case. His accumulated abuse, neglect, and physical pain had left him a changed horse from his gentle and laid-back days. After his arrival in Missouri he was still suffering from the after effects of his abandonment and no longer trusted people. Any approach was met with the rearing and fighting—he was fearful of what might happen. He was still malnourished when he came to Missouri and his broken knee was probably a source of constant pain.

For the first month, Twooey spent his time in the paddock closest to the Marchs’ home where they keep the worst-off animals so that they can receive special care and extra feed. Twooey was too skittish to be left with other animals. A note that accompanied him warned that he was aggressive and paranoid and could never be ridden again and should be confined to a pasture alone for the rest of his life.

The Marchs’ decided not to give up easily and sought to bring him back to being the laid back and gentle horse that he once was. To win his trust, the Marchs, with help from Dr. Amy Rucker, MU Equine ambulatory specialist, and veterinary medical students, put Twooey on a strict routine of feeding, physical contact, and veterinary medical care. His mealtime of sweet grain was given at the same time and in the same manner. Nothing was done

Lending a Hand and Providing an Education

About twice a week, the red ford pickup truck of the MU Veterinary Medical Teaching Hospital ambles down the road toward the Out-2-Pasture Farm. Inside are Dr. Amy Rucker, head of the equine ambulatory program, and two or three equine veterinary medical students. They’ve come to look after the veterinary needs of the horses and provide the students with medical cases outside of the College’s equine hospital.

“Racehorses have injuries that we don’t often see in Missouri,” Dr. Rucker says. “They have a lot of fractures, injuries to their joints, and soft tissue problems.”

As many of the horses have just come off the track, they are still high strung and difficult to handle. “It’s a great experience for these students to deal with this kind of situation,” Dr. Rucker said. “These horses are bred to run and don’t have a lot of other training. Some are frightened or aggressive. The students have to learn to be safe with them and yet accomplish the goals of the exam or treatment. It’s a great way for the students to develop their abilities and confidence. And many of these horses really need our help—physically and emotionally. It brings home to the students the reasons why they have chosen to become equine veterinarians.”

And the horses reciprocate. Several gallop—along with a veritable herd of dogs, cats, and goats—to meet the pickup even before it stops.

Best of all, Dr. Rucker says, the students can spend more time with each horse and see the progression of a treatment. “Unlike the horses that we see in the teaching hospital, these horses don’t go back to the care of their referring veterinarians,” she said. “Students get to see the progression of arthritis therapy or how well an orthopedic repair worked. Students get to know each horse by its personality and modify the treatment plan based on experiences other than the textbook knowledge that we give them back at the school.”

As the students get to know their patients better, they often develop a bond that follows them even after they leave the equine rotation of their studies. “Someone will see me in the hall of the College and ask that I give a treat or pet a certain horse when I go back to the farm,” Dr. Rucker said. “The whole concept of the farm is great and I love it.”

that could startle or threaten him. Then, he was gradually acclimated to more handling, people, and other animals. It took six months of such patient care so he didn’t have to be sedated to be groomed or get his shots.

The first few days were tough. Neglected for months while he waited for his sale, the horse was sick, filthy, agitated, and covered with sores. Dr. Rucker cared for the horse herself—letting the students observe from a safe distance. The Marchs, as gently as they could, washed him with iodine soap and ointment to keep the wounds soft and disinfected. As always, all would end these sessions on a good note with soft words and a treat of peppermints or carrots.

Twooey slowly responded. The big day came when he could be released into a pasture with other horses. Another big day came when he let Dr. Rucker and the students examine his healing knee without a fight. He even stopped running from the Marchs when they approached him. Slowly and warily at first, he even began to seek the company of people and allowed Robin to put a bridle on him and lead him around Out-2-Pasture’s meadows overlooking the Missouri River bluffs.

Twooey’s rest time and Dr. Rucker’s care had allowed the broken knee to heal and the Marchs decided to try to ride him—a graduation that may some day allow him to be placed with new owners.

“At first, he was horrified at the idea of being ridden,” Robin said. “You could see all the hurt come back in his eyes—he thought that a racing gate was going to open, he was going to have to run on a broken knee, and all of the neglect would start for him again. We encouraged him by just a slow walk with a treat afterwards. It took a little while, but I think that something finally clicked for him and he understood that we are on his side. He now loves to be ridden and he is back to what he once was like.”

Twooey had accomplished the goals of TRF and the Out-2-Pasture Farm—he had become a horse again.

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What Dr. Odendall Knows

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It's no secret that pets make people feel good. Today, research indicates that petting a dog can lower a person's blood pressure, owning a cat can positively change body chemistry, and caring for an animal will enhance the human body's immune system. One member of an elite group of dedicated investigators is making it his life's work to scientifically measure these benefits and make that knowledge available to the world.

Dr. Johannes Stefanus Joubert Odendall smiles a lot. His laugh is hearty and infectious and his accent gives away his South African roots. He becomes serious only when asked a question by a student. After listening intently, he explains the answer with stories, examples, and data. Then, it's back to smiles and laughter.

Dr. Odendall has a lot to smile about. He knows something wonderful. His scientific research shows that companion animals—simple pets who have communed with humans for millennia—have dramatic and measurable positive effects on the health of people.

This is beyond the warm and fuzzy feeling shared by anyone who has petted a cat. This is hard scientific research that indicates that interaction with pets can influence basic human chemistry—the very mechanisms for human life—in a way may help heal human diseases, delay the aging process, promote good mental health, and prevent medical problems from happening. These are not the claims of a traveling snake oil charlatan, but of a researcher and academic, respected by his peers, with multiple doctoral degrees that span the life sciences.

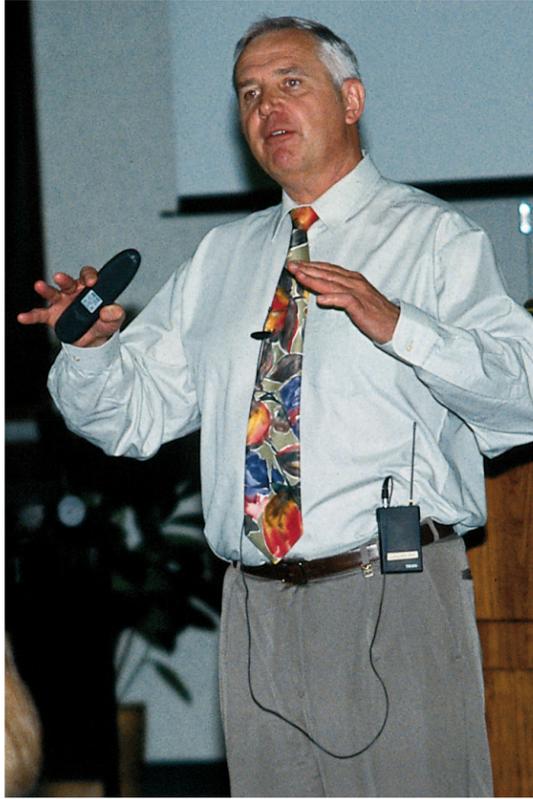
The scientific word for this mind-body relationship—psycho-neuroimmunology—is just now being investigated and holds tremendous promise.

"These chemical changes may have a crucial role to play in treating a myriad of devastating chronic conditions that have been only partially responsive to conventional treatment," says Dr. Richard Meadows, director of the MU College of Veterinary Medicine's community practice section and colleague of Dr. Odendall. "Psycho-neuroimmunology has been documented, to some extent, by other investigators in fields ranging from treatment of cancer, heart disease, depression, arthritis, and loss of cognitive function associated with aging, just to name a few. It is Dr. Odendall who is bringing all of these diverse scientific perspectives into one focus."

Dr. Odendall is uniquely qualified to pursue this research. His academic achievements have few rivals in the world. In addition to his veterinary medical degree, he holds no fewer than three doctoral degrees: a DVSc (the equivalent to a PhD) in Veterinary Science, a DPhil in Psychology, and a PhD in Physiology. In 1993, he earned membership in the Royal College of Veterinary Surgeons, London.

Why so many degrees? It takes this breadth of understanding to comprehend the implications of the human-animal bond, he says. "My background is broad—on purpose."

Dr. Odendall is as a professor and research development director of the Life Sciences Institute, Technikon Pretoria, South Africa. He's seldom home as he travels the world describing his discoveries.



Dr. Johannes Odendall

It's No Accident—It's Chemistry

Dr. Odendall's contribution to science is not merely noting that people feel better after interacting with an animal, but measuring the effect on human body functions. His scientific studies show that the comfortable feeling you get by interacting with a companion animal is no accident—it's chemistry. And, his studies indicate that its effects go way beyond the warm and fuzzy.

Dr. Odendall's latest scientific study involved six clinically depressed people who were each given a dog to care for. The group's blood makeup was measured before introduction of the animal and found, not unexpectedly, to be low in the chemicals that create pleasure and joy, serotonin, phenylethylamine, and dopamine. After the dogs were introduced, the amino acid precursors of these chemicals increased in their blood serum. The people also reported that they feel less depressed. This was the first time such a relationship between animals and humans was scientifically measured. This pilot study could provide an alternative to treating the clinically depressed with pharmaceuticals—with the attendant costs and side effects.

Earlier groundbreaking studies have shown that among both humans and dogs, beneficial changes occur in several key hormone levels including beta endorphin, beta phenylethylamine, prolactin, dopamine, and oxytocin within about 15 minutes of a positive interaction between animal and human. The release of these chemicals not only makes people happy, but strengthens the immune system, and, according to Dr. Odendall's findings, counteracts the production of bad chemicals that can lead to cancer or other diseases. The stress hormone cortisol, decreased concurrently during this study.

"We have a pharmacy between our ears," Dr. Odendall said. "It's free, it's legal, and it's natural. And it's easy to activate just by interacting with an animal. And, best of all, if applied correctly, you can't become addicted or overdose."

To many researchers, the most exciting is evidence from a Dr. Odendall study is that animal interaction may delay production of bad body

chemicals associated with diseases such as cancer. It's a double-whammy, too, as the study indicates an improvement in body chemicals associated with a healthy immune system. We may soon see a time when people at risk for certain cancers may be prescribed a pet to help delay onset of the disease, Dr. Odendall said.

The Odendall-MU Connection

It was Dr. Meadows and Dr. Rebecca Johnson, the Millsap Professor of Gerontological Nursing and Public Policy at MU's Sinclair School of Nursing, who invited Dr. Odendall to the University of Missouri-Columbia's College of Veterinary Medicine as a visiting professor, to speak to health care professionals, faculty, and students from multiple disciplines.

It is no accident that MU has connected with Dr. Odendall. The MU College of Veterinary Medicine recently launched the Center for the Study of Animal Wellness (CSAW), a virtual center aimed at fostering research to demonstrate the beneficial effects of human-animal interaction. In association with the Sinclair School of Nursing, a major goal of CSAW is developing research models that reach across species and disciplines. For example, CSAW is looking into how pets can help maintain the quality of life of the elderly in nursing homes. Another project: How can pets help reduce the need for medication by the chronically ill. Collaboration with Dr. Odendall forms a strong foundation for this work, Dr. Meadows said. Dr. Meadows is CSAW's director and Dr. Johnson is its associate director of research.

"Dr. Odendall's work epitomizes the 'One Medicine' concept that our institution aims to achieve via collaborative programs and research between many branches of medical science," Dr. Johnson added. "MU is the perfect place for such collaborative efforts with research-oriented colleges of veterinary medicine, human medicine, nursing, engineering, and other life sciences on the same campus."

One study overseen by Dr. Johnson looks to measure how much better the elderly do—physically and emotionally—when living in a nursing home with the companionship of animals. The simple administrative change of accommodating a handful of dogs and cats in this situation may not only dramatically decrease feelings of loneliness and isolation, but decrease the need for medication and other medical intervention.

The ancient Egyptians may have known something about psycho-neuroimmunology. Horace, the half man-half falcon, was believed to protect against disease. The Eye of Horace, in 4000 BC, was employed to protect the Egyptian king and queen. Horace is still with us today, the Rx symbol of the pharmacy comes from the Eye of Horace, still looking over our health and well-being.

"You can go back into history even further to see evidence of the human-animal bond," Dr. Odendall said. "Archeologists found a skeleton of a man who died 12,000 years ago. The man's hand was embracing the body of a small dog. You must ask yourself, how long has this bond existed?"

Dr. Johannes Odendall's visit to MU was a visit of kindred scientific spirits. MU's CSAW aims to collaborate and enhance Dr. Odendall's research and begin to put the results in the hands of clinicians—in both human and veterinary medicine.

If subsequent research goes where the early findings indicate, simple, inexpensive, and effective treatments may be just a prescription of a pet away. Something to smile about, indeed.

Ark



Little Dog, Big Odds *continued from page 1*



Most of the skin on Ruffy's back was scraped away when he was briefly dragged under the pickup truck. It was initially thought that no hair would ever grow on the resulting scar tissue. The hair did grow back, but it was of a different color.

In the next ten years, Ruffy was part of the family. "Our children joke that he's probably the only one in our will," Nancy said. "This, of course, isn't true, but we've really never had an animal that's been more a member of our family."

Like any family member, Ruffy has his own personality. His favorite foods are M&Ms, tacos, and spaghetti. "It's no telling how many hundreds of dollars I've wasted trying to get him to eat dog food," Nancy said.

During the usual early morning walk on September 26, the Clarke's dedication to the little dog became sorely tested when a neighbor's pickup truck ran over him, crushing him waist to tail.

A Month in the ICU

Ruffy's 31-day-stay in the teaching hospital's ICU would generate one of the thickest files in the College's medical records unit.

Resident surgeon Laura Dvorak was on duty when Ruffy arrived. She feared the worst when the thermometer wouldn't register a temperature for Ruffy. His pelvic fractures were the worst that she had ever seen.

Ruffy was admitted with shock, blood loss, an abdominal wall penetration, tendon rupture, multiple pelvic fractures, and a multitude of internal injuries.

The MU emergency personnel, including certified veterinary technician Jill Sorensen and senior veterinary medical student Carla Miller who initially treated Ruffy, noted that he was clinically unresponsive and stuporous, had cold extremities, and exhibited harsh lung and heart sounds. His eyes were fixed and dilated. Tests showed blood in his urine. Radiographs showed that the heart appeared abnormally small and there were signs of lung damage. The abdomen was filled with fluid. During his early treatment, Dr. Dvorak remembered, Ruffy would suffer two separate DIC events—disseminated intravascular coagulation, a typically fatal blood clotting disorder. There were also three serious systemic bacterial infections. Any one of these conditions was capable of killing the little dog.

The ICU team rallied around the little dog and his owners. They resolved to help him dodge every bullet shot his way—even when it looked as if he was in a virtual medical shooting gallery.

MU's veterinary ICU, as Dr. Meenen knew, was Ruffy's only hope. It is one of the largest and best equipped in the Midwest and rivals the tools and capabilities of a human trauma center. The MU ICU is one of the few veterinary facilities with specially-trained emergency personnel, wireless telemetry to better monitor the vital signs of patients, incubation equipment for neonatal patients, and ready access to

a high tech medical equipment, such as a CT scanner. Dr. Meenen's insight into the capabilities of the hospital came from first-hand experience—he graduated from the College in 1978.

Dr. Meenen also knew that the MU teaching hospital also possessed something intangible and difficult to define, an *esprit de corps* and love of animals and their owners that transcended the norm. The hospital had a well-earned reputation for routinely going above and beyond the usual to save their patients—not only through excellent treatment, but by bonding with their patients and pulling for them with emotional as well as medical care. Dr. Meenen knew that Ruffy, basically half crushed, would need every bit of this special care.

On October 2, Ruffy was stable enough for his first surgery—an orthopedic procedure in which a bone-plate device was placed to correct his shattered right iliac. Luckily, Dr. James Tomlinson, member of the teaching hospital's orthopedic unit and considered one of the best in veterinary medicine, was on hand to deal with the fractures with Dr. Dvorak's assistance. Five other major surgeries followed. One procedure amputated Ruffy's crushed tail.

Ruffy was still suffering from a blood infection and pancreatitis that required numerous plasma transfusions and a surgical procedure of its own. Since dogs, like humans, can only give blood once every two months, Ruffy's case was quickly depleting the available in-house blood supply. Ruffy had made a lot of friends at the MU Veterinary Medical Teaching Hospital. Students and faculty brought in their own dogs as volunteer blood donors.

Slowly, Ruffy began to respond as, one by one, his medical conditions stabilized. "The students assigned to him, Carla Miller, Erica House, and Sarah Bailey, went above and beyond," says Dr. Dvorak. "When they weren't on another case, they stayed with him and provided him with additional nursing care. The Clarkes helped, too, by visiting with him and keeping his spirits up. The Clarkes helped a lot of people. They would buy food for the students working late and consoled another family who had a pet, injured severely like Ruffy, who didn't make it."

Dr. Dvorak got to know Ruffy's case very well. She spent countless hours with him in the ICU and frequently coordinated his care by phone through all hours of the night. "One of the benefits of a major teaching hospital is that I could consult with other specialists, such as internist Dr. Paige Langdon and neurologist Dr. Dennis O'Brien about Ruffy's care," Dr. Dvorak said. "We all seemed to really want Ruffy to recover and enjoy a good quality of life."

After weeks of care, the medical signs began looking hopeful.

A Slow but Steady Recovery

Ruffy's severe bruising of his thorax, abdomen, and pelvis slowly resolved. His urine, which initially was almost all blood, began to become normal again.

A large gash on his back, caused by being dragged on the asphalt, also began to heal with treatment. His pain management techniques were altered as his injuries began to heal. Though still confined to the ICU, he was now conscious and could relate to the Clarkes and students and faculty who visited him.

Clinicians carefully watched how well Ruffy's crushed rear legs responded to therapy. One hindlimb showed promise, the other didn't. As Ruffy became more mobile, he was started on range of motion exercises and fitted with the canine version of a wheel chair, a cart that substituted two wheels for his back legs.

On October 27, a month after being admitted as an emergency case, Ruffy, in his little cart, walked out of the MU ICU to go home to Rogers for more recuperation. Nancy Clarke had never left Ruffy's side, staying at a Columbia hotel when not visiting the little dog in the ICU.

Ruffy didn't leave the teaching hospital without a party. He had become a *cause celebre* among faculty and students alike. With balloons attached to his little cart, he ambled among the students, residents, staff, and veterinarians who helped him, giving each a lick or a kiss. A cake, complete with MU logo and 'Farewell Ruffy,' completed the scene.

Ruffy, pleased to be home, was not out of the woods. As could be expected, his internal injuries, pancreatitis, and a blood infection would take time to heal. Ruffy was carefully monitored and treated by Dr. Meenan in consultation with colleague Dr. Dvorak. Ruffy revisited the College in January for additional treatment and to renew his relationships with his friends in Columbia.

Vote for Ruffy!

Before the accident, Nancy Clarke, an avid photographer, was working toward having Ruffy's image included in the Arkansas Newspapers in Education annual pet calendar. The fundraising event, to benefit the Humane Society of the Ozarks, garnered 270 cute pets with a large dose of exotic animals and purebreds. Stiff competition for a scruffy little dog now in a wheelchair.

Nancy persisted and got help from hundreds of miles away. The faculty, students, and staff of the MU College of Veterinary Medicine had not forgotten the tough little dog who pulled through despite the odds. E-mails, posters, and personal pleas radiated around the College—from the Dean's Office to the rooms where the cedar chips to bed horses are stored—asking for votes and donations to put Ruffy in the calendar. For weeks, the College rang with "Vote For Ruffy!" People who didn't even know Ruffy voted and sent in the required donation—they realized that something special was at work and responded.

When the totals were amassed at the Benton County Records newspaper, Ruffy not only had enough votes to be included as one of 13 winning animals, he was the top vote getter, and his photo graced the cover of the calendar as the Arkansas Gazette's Pet of the Year.

Nancy didn't think that Ruffy had much of a chance to be included in the calendar, much less make the cover. But then, Ruffy has a history of beating the odds, with a little help from his friends.

Ark

Looking Forward to the Next Generation of Partners

The University of Missouri College of Veterinary Medicine's friends are legion. I'm looking forward to joining this group for the improvement of companion and production animal health in Missouri.

By Park E. Bay—Director of Development, MU College of Veterinary Medicine

The University of Missouri's College of Veterinary Medicine has been around for a long time and has made, and cemented, strong relationships between the state's companion, equine, and production animal owners. This college has a lot of friends and supporters. It's hard being the new kid on the block with all of that history, so let me introduce myself. I'm Park Bay, the College's new Director of Development.

My job here is development, a somewhat fancy word, perhaps, for finding ways for the College to financially support its three missions of teaching, healing, and discovery. As anyone who has read the headlines lately, colleges and universities must become more self-sufficient in their funding.

Despite the recent problems, we're entering an exciting time for the College. This institution has made a name for itself in excellence in its graduates, its research endeavors, and its service to the community. The College has made many friends and, together, we have formed an indomitable partnership that has survived, and thrived, through the bad times.

Since I plan to meet with many of you in person to put forward the College's case for assistance, it may be helpful if you knew a little bit more about me and what I am all about.

Growing Up With Agriculture and Hard Work

I was born in the northwest Missouri town of Tarkio. Dad owned a tire and battery store and later partnered with his brother in a John Deere dealership. These were the Depression days when CCC camps and WPA workers were commonplace. Mom came from a dairy background in Bonner Springs, Kan.

Our family farm consisted of hogs, cattle, and row crops. Tarkio was known as the "Popcorn Capital of the World." Dad raised 20 acres of popcorn, harvested ear and delivered to the Manley Elevator.

We had the latest equipment of course, if you call a two-bottom plow, two-row planters, and a cultivator the "latest." To this day, I marvel at the number of acres farmed with a Model B John Deere and a part-time hired hand.

We later purchased a farm near Elmo, Mo., three miles from the Iowa line. We were now full-time farmers depending on the land to support a family

with five children. Being a farm kid was great. Driving tractors, milking cows, and feeding livestock was a wonderful experience. Yes, my brother and I rode horses to a one-room schoolhouse (where there were often sixteen horses waiting in the school's barn).

My growing up taught me about agriculture and the hard work that goes with it. Custom baling of hay and milking seventeen cows (by hand) each morning and night while going to school was a unique education. I realized early the importance of our local veterinarian. He always took time to show us how to de-horn calves, pull calves, and pull pigs (because his arms were too big). Our veterinarian taught how to take care of our horses, what to feed baby chicks, and what medications that they all needed. He had us hold the pigs while he gave them their vaccinations. It was our veterinarian who explained about mastitis, brucellosis, and pink eye, and what was the best course of treatment. My growing up years took place during World War II. I was in high school when the Korean Conflict began. The draft was still in effect and if I enlisted I could go to college under the GI Bill. The Coast Guard recruiter quickly grabbed my attention by saying, "Mr. Bay, do you want to take lives or save lives?"

MU To Farming To Banking To MU

Four years of sea duty later, I came to the University of Missouri-Columbia with my new bride from Philadelphia. My intent was to become an Industrial Arts Teacher. However, a \$4,400 annual teaching salary didn't balance my budget. While attending MU, I worked at a local Schapperkötter Hardware.

On a cold snowy February day I sold a lawnmower to the manager of a Farmland Industries Cooperative. He convinced me to get back into production agriculture. (What is that saying about the boy and the country?)

I had to rent a farm to raise 70 head of cows and calves. Then, of course, the next step was to buy 120 acres in 1976. A banker friend was kind enough to lend funds for our farm operations; and he was so impressed that we paid as agreed. This same banker was due to retire and asked me to train under his tutelage. This began my twenty-seven year career as an agriculture lender and vice president of business development.

In my last six months of banking, two MU directors of development approached me saying that my talents would fit into their plans. Needless to say, the MU College of Veterinary Medicine became my new home. I have known, throughout my various careers, that veterinarians are special people. I also know our MU Veterinary Medicine and Teaching Hospital can do amazing things for animals and people.

Down deep I have a love of agriculture and all the experiences that go with it. I am sure some of our readers say, "What does all of this have to do with development?" The facts are simple. Colleges will be financed with less state funding (taxpayer money). Consequently, we in the College of Veterinary Medicine will have to work harder and smarter to obtain funds for our mission goals.

Another simple fact is that we are in earnest competition with all other colleges and veterinary schools for the best and brightest. To attract these fine students, we must have the best faculty and researchers, and the most up-to-date equipment and facilities. As most know, it is expensive to train the quality veterinarians for Missouri's pet owner and agriculture needs, therefore, scholarship funds are constantly needed.

I look forward to meeting all of you who have a love for this fine institution. Many of you will be asked to volunteer to help in our new "For All We Call Mizzou" Campaign. Please contact me at the College of Veterinary Medicine if you have questions. As they say, "Now you know what I am all about."

Ark

Arkeology Because animals are more important today than ever before in our history, the MU College of Veterinary Medicine is dedicated to preserving, protecting, and strengthening the human-animal bond. *Arkeology*, as its name implies, is a medium for bridging between the role of the college as a protector of the animal kingdom (a kind of modern ark) and as a place where science, medicine, learning, and teaching can flourish (*logia* is the old Latin and Greek word for study or discipline). Continuously embarking on voyages of teaching, healing, and discovery, the College invites you on board this vessel to journey with us.



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