Celvin was scarcely 24 hours old when Wilma Prins discovered he had a severely broken leg. “It was the day after he was born,” said Prins, horse trainer and barn manager for Ots Sunrise Farm in DePere, Wisconsin. “His mom was a maiden mare and must have stepped on him during the night. I just couldn’t put him down. I pulled him out of his mother, I helped him to nurse, we already had a tight bond.” In addition, Celvin is an expensive horse, bred from very specific genetic lines to become an Olympic hopeful.

The owner agreed the horse needed surgery, so they brought him to UW Veterinary Care’s Medical Teaching Hospital. But which orthopedic surgeon does a young horse see if it is the size of a dog?

Ever since Dr. Sabrina Brounts, a large animal surgeon, and Dr. Peter Muir, a small animal orthopedic surgeon, collaborated on orthopedics research, Brounts started consulting with Muir on some of her large animal cases, seeking his orthopedic expertise. “It just grew from there,” Brounts said. Now, when the lines between large animal and small animals blur, the two specialists pool their knowledge.

According to Brounts, two types of animals confound the usual categories. Alpacas and llamas are the first. They are smaller and lighter than other “large animals,” with different behavior. “They’re the same size as a large dog,” said Brounts, “and they take good care of themselves.” She explained that alpacas and llamas, like dogs, rest when they need to and keep weight off their injured limbs. That makes them good candidates for orthopedic surgery, as they don’t overstress plates and screws.

The other cases that often bring Brounts and Muir together are young animals, like calves and foals. Again, their size makes them hard to categorize. Their bone growth, however, makes orthopedics a good option. “With a young patient, just like with children, fracture healing is more rapid than in adults,” Muir said.

But the decision to opt for surgery is more complicated with a horse than with other animals. “For an alpaca or a llama, it’s different because they don’t have to be at the level of an athlete in the future,” said Brounts. She explained that horses, unlike alpacas and llamas, simply need to be athletes. Even the most laid back activities require high demand on a horse’s bones and muscles. “The criteria are different. Quality of life is a huge concern for us,” said Brounts.

When Celvin’s owners reached out to UW Veterinary Care’s Medical Teaching Hospital, the combined expertise offered a

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Jefferson County Shelter Finds Help

“I’m no longer afraid of ringworm,” said Barb Rayno, manager at the Humane Society of Jefferson County, “I know what to do, and I have the right tools.”

But that wasn’t always the case. Last September, Rayno recognized a couple of kittens with ringworm. They removed the affected animals, but the disease continued to appear in more and more cats. The shelter had no other alternative but to close the cat area.

After many attempts to rid the shelter of ringworm, the humane society’s veterinary advisor contacted Dr. Sandra Newbury, adjunct assistant professor of shelter animal medicine and Dr. Karen Moriello, clinical professor of dermatology at the UW School of Veterinary Medicine. Together, the two doctors created a protocol to deal with ringworm in a shelter environment.

“Ringworm can spread quickly in this environment,” explained Newbury, whose primary appointment is veterinarian for National Shelter Medicine at the Koret Shelter Medicine Program Center for Companion Animal Health at the UC Davis School of Veterinary Medicine. “It can seem overwhelming, but if you use the system we have developed, it is very manageable. Unfortunately, ringworm is very common and very misunderstood. Putting a treatment program into place can change the way a shelter manages ringworm. And by instilling a preventative approach, it can be managed quite well.”

Previously, Drs. Newbury and Moriello had worked with Dane County Humane Society (DCHS) to create a control program. Because of their efforts, DCHS became one of the country’s model shelters for managing ringworm. The facility now includes a special area for the infected animals and has developed a team of experienced volunteers who both diagnose animals with ringworm and help treat those affected animals.

The staff at the Humane Society of Jefferson County had taken some steps to reduce their ringworm problem, but they didn’t know when or if they could control the outbreak. The holidays were fast approaching, a popular time for people to adopt animals and this would not be possible if the adoptable cat area remained closed.

Dr. Newbury enlisted several Dane County Humane Society volunteers and traveled to Jefferson County to implement DCHS’s ringworm protocol. They jumped in and showed Rayno the strategies developed for DCHS. She learned how to perform a lime/sulfur dip and develop a new cleaning process for cages. In the end, Jefferson County was set up with a proactive approach. “It is all logical, and it works,” said Rayno. “Knock on wood—we haven’t seen ringworm since. I’m always open for better ways of doing things. If someone knows how to build a better mouse trap, show me how to use it.”

Since then, Rayno has reached out to another humane society that had to close its doors to offer assistance in implementing a ringworm control program. Today Rayno is confident in their ability to keep ringworm under control in a shelter environment.

Lori Strelow
Jesse and Bushes Make History

Jesse’s owner, Cathy Brown, is very attuned to her golden retriever. On the day before Thanksgiving she noticed a head tilt and a front leg tremor. Later that day she found thick nasal discharge. Cathy brought Jesse to the UW Veterinary Care Teaching Hospital primary care service and they recommended a consult with a neurologist. Following an MRI, the doctors found a nasal tumor and a brain stem tumor.

Barbara Knutson, the owner of Bushes, also noticed changes in her cat. His left eye was running and he would frequently sneeze. At first she thought Bushes had developed allergies, but he became severely congested. “He would pile up his food and throw it into his mouth in order to eat,” explained Knutson. She took Bushes to her local veterinarian in Galesville, Wisconsin where he was treated with antibiotics and prednisone. But Bushes didn’t get better. When it became evident that he had a nasal tumor rather than allergies, her veterinarian told her she needed to head to the UW Veterinary Care Teaching Hospital. She explained it was the best place for treating cancer.

Dr. Juan Borrego, a resident in oncology, examined both Jesse and Bushes. He understood the devastation that a diagnosis of cancer brings and the importance of quality of life for the owners.

“I explained their options and made sure they understood what the risks and side effects were,” said Borrego. “In Bushes’ case, radiation was the only option. Jesse’s case was more unusual. It is rare to treat two tumors at the same time. Both owners had to wait one month before treatment could begin. That wait was easier for Jesse because he didn’t have clinical signs. The wait was a bit more complicated for Bushes’ because he continued to be symptomatic. Jesse and Bushes went through a second CT-scan within that waiting period to do the necessary computer planning in case the tumors had changed in size before treatment.”

Both Brown and Knutson knew that TomoTherapy offered a more precise approach, avoiding serious side effects. They were told that TomoTherapy pinpoints the radiation beam, targeting the tumor and missing the healthy tissue. Both found themselves in the same situation—they knew they wanted to help their pets, but they also wanted the best treatment available. Brown and Knutson chose to wait until the first week in January, when the school’s new Radiation Therapy Clinic opened its doors.

Together Jesse and Bushes have made history as the first two animals to be treated at the new Radiation Therapy Clinic—the first veterinary clinic in the world to offer TomoTherapy to its patients.

“How spoiled I am to be here in Madison,” said Brown. “It is great to live near a veterinary school and now this one has a TomoTherapy unit. Jesse is lucky.”

But TomoTherapy isn’t the only reason Jesse and Bushes are lucky. The clinic addition and the TomoTherapy unit were made possible through gifts from generous donors who realized the importance of this technology to the UW Madison School of Veterinary Medicine. According to Dr. Ruthanne Chun, associate dean for clinical affairs and director of the UW Veterinary Care’s Medical Teaching Hospital, “The new addition expands our therapeutic capabilities by leaps and bounds. We are going from a ‘standard’ radiation therapy unit to a ‘crest of the wave’ technology that is coveted by many human radiation oncology facilities. We will be able to treat cancers more precisely, with hopefully even greater efficacy while maintaining a better quality of life for our patients.”

Lori Strelow

Hospital Shares its Wish List

Hospital income cannot always stretch to cover all the desired improvements needed. If you would like to help the Veterinary Medical Teaching Hospital enhance client services, please consider contributing toward the following equipment and service needs. Call Brad Join for more information 608/263–5129 or visit www.vetmed.wisc.edu/wishlist.

State-of-the-art MRI—$3 million
State-of-the-art 1.5T MRI located in the VMTH with capabilities for imaging small animal and exotic patients with neurologic, musculoskeletal, cardiovascular and abdominal disorders. Additionally, this unit will be accessible for large animal patients with disease of the limbs, head and upper neck.

High volume fluid pump for large animals—$4,000
This pump would allow us to administer large volumes of fluid to critical large animal patients, such as horses with colic. Traditional fluid administration units can only deliver about 10 liters of fluid intravenously per hour. The average horse with colic needs at least 30 liters of fluids prior to, and during, colic surgery. This pump would give us the capability of more efficiently meeting those patients’ needs.

Siemens Fluoroscopy Unit for Radiology—$300,000
Used extensively for urinary, neurologic and GI contrast studies, and for radiographs of large dogs or smaller large animals such as sheep, llamas, foals and calves, the image quality on the existing unit is deteriorating due to age. Replacement parts for this 25-year old machine are difficult to find and its fluorography cannot be integrated with the new filmless image viewing system recently installed throughout the hospital. Replacement would also improve interfacing with the new digital radiography system, enhancing image retrieval, presentations, and long-term archiving.

Tubing sealer for Blood Donor program—$2,000
To aid in the preparation and storage of blood collected from the hospital’s blood donors (private animals that receive benefits for participation in the program). The VMTH uses the same supplies and equipment that are used in human blood donation programs.
Artist’s Work Reaches Out to Clients

When artist Paula Schuette Kraemer learned that her golden retriever, Andy, had lymphoma (a cancer of lymph nodes and tissues), she created a series of prints to work through her grieving process. The resulting show was entitled, “Thank You.” It was a tribute not only to Andy and her other old dog, Arthur, but the print series also spoke to everyone’s very special experience of dog ownership. In her artist’s statement, she explains:

“The role that they have played in my life is major: I speak to them daily more than any other living thing and they listen carefully, though my words are often repetitive. They find joy in simple things like the sunshine, a roll in the snow, a good smell or a pat on the head. Their emotions are uncomplicated and easy to read—no love/hate, no envy, no politics. These dogs are non-judgmental.”

After a year and a half of cancer treatment, Andy passed away. To commemorate him and to show her gratitude, Kraemer donated the drypoint monotype print entitled “Petting My Old Dog” to the UW School of Veterinary Medicine. The donation was her way of thanking the staff and students for their care and understanding during a very sad and difficult time of dog ownership. Years later, one of Kraemer’s friends saw the print in the hospital comfort room, while waiting for word on her own pet. She found the work of art comforting.

Recently, Kraemer donated six more intaglio prints to the teaching hospital’s new Radiation Therapy Clinic. This series, “The Leash,” is about teaching a puppy to walk on a leash. “Have you ever worked with a puppy, teaching him how to obey and walk on a leash?” asked Kraemer. “That’s really all this suite of prints is about. Milo, the chocolate lab, is a dog with character and attitude. These prints are about his reaction to an outside force: me, the dog walker.”

“I like the fact that my artwork helps others through the various stages of life,” said Kraemer. “While I am working from my own personal life experiences, I am also speaking to the universal feelings we all have. My comments on pet ownership, both the happy and the sad times, are meant to be shared with others who have similar feelings. The veterinary hospital is a very good place for my works to be on view; and my pieces can help others there, too. We are so fortunate to have the veterinary school—it is a wonderful resource for the community and the world. This was something I could do to give back and to say thank you.”

**PET TIPS**

**Feathered Horses Prone to Mites**

Breeds of horses with feathers on their legs are more likely to contract mites. Signs of infestation include a horse stomping and trying to bite its legs. Shaving an affected horse’s leg will reveal the lesions. The mites may also travel up the legs to the groin and under belly.

Your veterinarian can recommend appropriate treatment which involves shaving the affected areas. Because mites travel, treat above the lesions, too. And since mites tend to jump on and off a horse, it’s also important to clean the environment.

Susan Semrad, VMD, PhD, DACVIM

**ORTHOPEDICS** continued from page 1

Unique viewpoints not available from other consulting veterinarians. “Dr. Muir and I evaluated him together and between us that foal had the best working for him,” said Brounts. She and Muir agreed that surgery was a strong option. “I gave him a fair prognosis,” Brounts said. “And the owner said, ‘go for it.’”

Even after the owner agreed, decisions needed to be made. “You have different lengths of plate, different widths of plate, different types of screws, each of which are chosen depending on the bone,” said Brounts. Ultimately, they used two plates and 27 screws to stabilize the fracture, and after a successful surgery, they were pleased with their decision. Now the hardest part will be to get the little guy to sit still during recovery since, unlike an alpaca, he won’t rest easy while he heals. “He jumps like a pogo stick,” Brounts said.

The future looks good for Celvin. He is still really playful, however he spends most of his time on stall rest. He requires special shoeing every four weeks so his heel grows properly. Prins takes him on daily walks, but looks forward to spring, when she can let Celvin out to play in the pasture.

“I have never had a reason to bring a horse to the UW Veterinary hospital,” said Prins. “They explained everything really well. It was expensive, but he is worth gold out here.”

The challenges that Brounts and Muir face together are an engaging puzzle for them, which they have a unique way of approaching. And thanks to a gracious donation, they now have more options. The hospital recently acquired the gold standard for repairing large animal fractures—a complete set of locking plates designed for large animals.

This past January, Brounts and Muir published their collaborative work on orthopedic treatment on llamas and alpacas in the Journal of Veterinary Surgery, showing the veterinary community what their shared expertise has done for patients like Celvin at the UW Veterinary Care’s Medical Teaching Hospital.

Six intaglio print series entitled “The Leash” is about teaching a puppy to walk on a leash.
A Change in Course = A Change in Career

When Meghan Vermillion first went to college, her goal was to be a small animal veterinarian. With an undergraduate degree in biology, her sites were set on veterinary medicine. But her career path took a few detours and she found herself working with lab animals in the toxicology department of Covance, a drug development company doing pre-clinical studies.

When she began her professional studies at the UW School of Veterinary Medicine, she had a new career goal in mind—lab animal veterinarian. "The job at Covance changed my focus," said Vermillion. "I knew research was where I was heading. I like the environment and find it to be very rewarding."

At the UW School of Veterinary Medicine, Vermillion was excited to learn about the Summer Scholars Program the school offered and she joined Dr. Ted Golos’s lab for a 12-week research opportunity. Here she looked at the role of natural killer cells in pregnancy. The lab was trying to find an answer to why a mother is able to tolerate a fetus. The answer to that question could have a big impact on how patients might better tolerate transplants.

After 12 weeks, she knew she wanted to continue with the project. "Research can be tedious and frustrating," explained Vermillion. "Things may never work the way you want them to, but that also makes it more rewarding when something does work and you think, 'I'm the first person to see this.'"

Vermillion’s wish to continue her research was granted after her second year as a veterinary medical student when the Howard Hughes Medical Research Fellows Program accepted her into their program. She was one of 66 students nationally to receive the prestigious fellowship.

In addition to research, Vermillion is required to attend three meetings a year at the Institute's headquarters in Chevy Chase, Md. But for Vermillion, these meetings are a highlight. "The investigators are so cutting edge. I just love to hear about their research," said Vermillion. "I am also exposed to career panels and hear from young investigators who give advice on pitching to good mentors and making the most out of our experience with the Institute."

Meanwhile, Vermillion is back in Madison trying to make the most out of the study of killer cells in non-human primates specifically to identify their exact role in contributing to the tolerance and intolerance of foreign cells in the body. When her year is over, she will go back to being a veterinary medical student. What's next for Vermillion? After she receives her degree, her goal is to do a residency in lab animal medicine.

Lori Strelow

Generosity and Hard Work Pull Together to Create New Dental Suite

The UW School of Veterinary Medicine’s new dental suite opened its doors in February 2011. Thanks to the generosity of Midmark Corporation and a little elbow grease from the Dentistry and Oral Surgery service, the facility is truly state of the art.

“Midmark donated everything: the cabinetry and the equipment, including the diagnostic and therapeutic instruments,” said Dr. William Gengler, the founding section head of Dentistry and Oral Surgery at the school. The new facility includes high resolution digital X-ray equipment, cabinetry manufactured for dental instrument storage, shadow-reducing lights and a Canis Major wet treatment table that allows ergonomic adjustability.

According to Gengler, Midmark’s generous gift benefits everyone involved. “They’re putting the equipment in the hands of the specialists.” The UW School of Veterinary Medicine is only the second school in the country to receive such a gift from Midmark. The school’s dental specialists are certainly glad that the school has been singled out for the generous donation. Between the in-house specialists, the students on rotation, and visiting veterinarians, the new equipment will certainly be put to good use. “This will be a real resource for referring veterinarians, residents, students, and clients,” said Gengler.

To house this new equipment, the Dentistry and Oral Surgery service assumed responsibility for covering the costs associated with the remodeling for the project. For that, they turned to gift funds. Dr. Gengler began receiving back in the 1990s as part of a major effort to expand and improve the dental section. Donations, fundraising events, funds from continuing education talks, and even a $10,000 prize from a video contest, helped the section accumulate the funds needed to revamp what was once a men’s locker room into a cutting edge dental suite.

The hard work has paid off. The new dental suite is now a reality and marks another milestone in the already impressive growth of the Dentistry and Oral Surgery service in the Department of Surgical Sciences. The service continues to stand at the forefront of veterinary dental service, with a bright future ahead.

Ali Bartol
Digital Dermatitis is a Nation-Wide Threat to Cattle Health

Digital dermatitis is very common in Wisconsin’s cattle herds. Dr. Dörte Döpfer, DVM, MSc, PhD, UW School of Veterinary Medicine’s Food Animal Production Medicine section, encourages farmers to keep long-term management of digital dermatitis in mind as they struggle to improve hoof health in their cows.

Döpfer, together with other members of the Food Animal Production Medicine section, farmers and hoof trimmers, are working to combat digital dermatitis, a painful and highly contagious foot infection spreading rapidly across the country. Under a three-year USDA Animal Health grant that began in October of 2009, Döpfer is applying field research with the assistance of local farmers to root out risk factors associated with the infection, as well as effective methods for maintaining hoof health.

Digital dermatitis, referred to as “hairy heel warts” by farmers, is a serious problem that emerged during the early 1990s. First identified in Italy in the 1970s, it spread quickly across Europe before finally emerging in the U.S. in the early 1990s. First identified in Italy in the 1970s, it spread quickly across Europe before finally emerging in the U.S.

The disease causes painful ulcers on the cow’s foot that spread quickly to other cows in the herd. “Treating one of the ulcers is not a problem,” Döpfer said. “The problem is that they come back in outbreaks.”

With such a widespread disease as this, Döpfer and her team are looking beyond the individual and into the environment, the herd, and the issue of long-term health management. Döpfer explains that, while treponema-like spirochetes are the bacteria mainly responsible for the ulcers, other influences come into play as well. “The cause is multi-factorial, with a strong bacteriological component,” said Döpfer. “If you control the risk factors—animal density, hygiene of facilities, and optimal hoofbathing—you can keep the disease at a manageable level.”

The concept of best practice management—the idea of not only seeking a cure, but looking for a way to manage the problem as a whole through the farm’s practices—has led Döpfer and her team to find encouraging results using hoof baths. In this process, the entire herd walks through shallow baths filled 4–5 inches deep with a sanitizing solution of, for example, copper sulfate. By combining this strategy with careful herd records and the use of local therapy for individual ulcers when outbreaks occur, Döpfer is confident that farmers will see good results.

“There is no magic bullet to eliminating digital dermatitis. We are looking into the long-term effects of hoof health management,” Döpfer said. “We want to achieve a manageable state of disease.”

Although the problem is widespread, Döpfer’s team is pleased with their progress, thanks in large part to the farmers and hoof trimmers in the area who have helped collect samples and tried out new management strategies. With a long-term goal in mind, farmers should be now able to cope with digital dermatitis within their herds, and all herds across the country.

Ali Bartol

Pictured here is an acute digital dermatitis lesion.

Dear Alumni:

Happy Birthday!

100 years is quite an occasion to celebrate, wouldn’t you agree? In 1911 the Veterinary Sciences program began at the UW–Madison and it continues today as the Comparative Biomedical Sciences Program at the School of Veterinary Medicine. The school, which enrolled its first DVM students in 1983, is honored to be a part of the legacy of research that has made a profound impact on human and animal health and agriculture. Alumni of the programs are leaders in their respective fields around the world, multiplying the program’s impact even further.

For more information, please visit www.vetmed.wisc.edu/100years.

For some of our DVM alumni, this 100 year anniversary might be surprising given that our inaugural class has yet to celebrate its 25 year reunion. Our young school is fortunate to have a long history rooted in the strength and heritage of the veterinary sciences program. Being a part of an academic tradition that is at the forefront of discovery and outreach has enhanced and enriched our curriculum and training. The cornerstone of research and teaching has served as a critical foundation of the school’s excellence and advancement of veterinary education, scholarly activities and clinical service.

The successes of the UW–Madison’s veterinary sciences programs over the past 100 years are the result of talented and dedicated faculty, staff and alumni. Thank you for being part of this distinguished legacy and here’s to the next 100 years!

Kristi V. Thorson
Director of Alumni and Donor Relations
Michael Russell, a 2007 graduate of the UW School of Veterinary Medicine, had no intention of becoming an equine veterinarian when he started school. But during his second year in the program, he joined Rural Area Veterinary Service (RAVS) and traveled to Guatemala while on winter break. Previously a Peace Corps volunteer, Russell was no stranger to traveling in remote areas. He was, however, a stranger to horses.

“We would be a group of six veterinarians, four students, and a guide and go into very remote areas,” said Russell. “We would take solar chargers because there was no electricity. When I started, I didn’t feel confident in equine medicine. One week in Guatemala and I was doing an entire castration by myself.” During his next two years in veterinary medical school, he returned to the RAVS program and spent each break in rural areas without veterinarians.

Today Russell is the on-site veterinarian for the Grace Foundation, an equine rescue and rehabilitation facility in Eldorado Hills, California. And he has recently started a private practice, called Grace Veterinary Services. The Grace Foundation sits on 600 acres and is home to many unwanted horses. The majority of the horses are brought in, cared for and then adopted, but some of the horses will never leave the foundation.

“If we have room and I believe a horse can be pastured sound, horse friendly and find a job working with people who have disabilities, then they can earn their keep. A job can be as simple as letting someone brush them,” said Russell. (In addition to being a horse rescue, the Grace Foundation has a “Ride and Shine at Grace” therapeutic program, providing horseback riding lessons and other equine assisted activities for those individuals with special needs.)

The majority of the foundation’s cases are referred through animal control and the horses are in really bad shape. “On the Henneke scale, I’m talking a body score of “1,” said Russell. “Some we haven’t been able to save.” The Henneke scale is a scientific method for judging a horse’s body condition. A horse with a score of 1, is often described as a walking skeleton, while a score of 9 is obese. For a horse, 5 is the ideal number on the Henneke scale.

But Russell is able to save many from death. “I named one of our favorite rescues O.C. for Old Chestnut,” said Russell. “We saved him right before being loaded onto a truck heading to the slaughter house. He foundered, but recovered and became a favorite with the therapy and farrier students that come two days a week from a nearby Pacific Coast Horseshoeing School.”

Russell still dedicates a few weeks each year to RAVS. He spent January on a volcanic island in Nicaragua working with farmers whose horses play an integral role in their livelihood. On his return to California, he will continue to dedicate his time to horses in need. According to Russell, “Most everyone cares, the best thing anyone can do for horses is be involved in animal welfare.” And from the hundreds of names on the Grace Foundation volunteer list, it appears many are doing just that.

Lori Strelow

**PET TIPS**

**Test your pets for heartworm**

Before mosquitoes appear, get your pets tested for heartworm. If they’re free of infection, put them on preventative for the duration of the mosquito season. Remember, cats can get heartworm, too! Your veterinarian can provide tablets, topical medication or injectable medication to keep your pet heartworm-free.

Sandra Sawchuk, DVM

**Helpful Tip:**

Spaying or neutering pets is still the best way to prevent unwanted pets. But the procedure also offers health benefits to the animal—fewer mammary tumors or prostate problems, less urge to roam and potentially get hit by cars, and less stress. In general, neutered pets lead calmer, longer lives.

Sandra Sawchuk, DVM
Celebrating One Hundred Years of Veterinary Science

In 1911, the University of Wisconsin–Madison established the Department of Veterinary Science. In 2011, we celebrate 100 years of significant scientific contributions to both animal and human health from the men and women associated with this program.

The Veterinary Science graduate program continues today as the Comparative Biomedical Sciences program, and we continue to build on our strong history of research and discovery, expanding our reach around the globe.

Highlights of a few of our accomplishments include:

- Leadership in the field of bovine brucellosis eradication in the United States.
- First to demonstrate the prion cause of transmissible mink encephalopathy, an infectious agent causing fatal brain disease and related to CWD in deer.
- First to conclusively demonstrate the transmission of swine influenza from pigs to humans.
- First to show that the La Crosse virus, a virus which causes encephalitis in humans, shelters in mosquito eggs after the adult female dies in the first frost.
- First to discover the virus that caused bovine lymphosarcoma, a malignant cancer of the lymph system in cattle.
- Demonstrated that increased breathing at high altitude is mediated by an increased sensitivity of the carotid body to low oxygen levels.
- Provided guidelines that revolutionized vaccine programs for dogs and cats.
- Introduced veterinarians to two hormone preparations (GnRH, PGF–2alpha) for improved breeding management practices in horses.

During the coming year, we will continue to highlight more ground breaking discoveries from our students and faculty. Please visit www.vetmed.wisc.edu/100years for more information.