

INSIGHT

Winter 2001

College of Veterinary Medicine
and Biomedical Sciences

New Camera at VTH
Advances Animal Care
and Biomedical
Research

Collaborative Program Leads
to Innovative Research in
Orthopedics

Dr. Lance Perryman
Takes Helm of College



Colorado
State
University

Knowledge to Go Places

W elcome

Welcome to the Winter 2001 edition of *Insight*. So many exciting and new things are happening at the College of Veterinary Medicine and Biomedical Sciences, you'll need to keep this edition as your map to all the changes taking place including a new dean, a new building, and a new look.

In this issue, you'll meet Dr. Lance Perryman, who took over the job of dean of the College in October. He replaces Dr. James Voss, who served the College so well for so many years but who was ready to hand over the reins and move on to the next stage of his life. As a tribute to Dr. Voss, the Veterinary Teaching Hospital was renamed in his honor, and you can read about that in this issue, too.

Other featured articles include the groundbreaking of the new wing for the Veterinary Teaching Hospital, Dr. Douglas Ishii and his exciting work in diabetes and brain disorders, the new Hawkeye gamma camera at the VTH, a review of a study in foal mortality, the announcement of the birth of two special foals, the new College insignia, and so much more.

We welcome your questions and comments on *Insight*. If you'd like to get in touch with us, please send your correspondence to:

Insight Correspondence
 College of Veterinary Medicine and Biomedical Sciences
 Colorado State University
 Fort Collins, CO 80523-1601

You can e-mail *Insight* comments to Paul Maffey, director of development for the College, at pmaffey@cvmb.colostate.edu. We also invite you to visit us at our Web site at www.cvmb.colostate.edu. ■

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INSIGHT

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COLLEGE OF VETERINARY MEDICINE
 AND BIOMEDICAL SCIENCES

On the cover: The new Hawkeye gamma camera at the James L. Voss Veterinary Teaching Hospital. Inset: Karen Feinberg and Rosa Elia prepare a patient for vitamin B12 metabolism imaging using the gamma camera. Scans: Images from the gamma camera show dogs with osteosarcoma – bone cancer. The top image shows a tumor in the femur. The middle image shows a tumor in the humerus and the bottom image shows a tumor on a rib.

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New Camera at VTH Advances Animal Care and Biomedical Research

Gamma rays – it sounds like something out of a *Star Wars* movie: “Take the patient to sick bay and use the gamma ray machine for diagnosis.” But this isn’t a movie, and these patients aren’t living light years away. This is the James L. Voss Veterinary Teaching Hospital, and the patients are dogs and cats whose diseases are being diagnosed and treatment plans developed with the help of a new gamma camera.

The VTH is the only veterinary hospital in the world equipped with a Hawkeye gamma camera, and that has faculty clinicians and researchers excited about the potential for advancement of care and research into many areas of animal medicine including oncology, cardiology, and orthopedics. The camera, purchased from the Mayo Clinic in Rochester, Minnesota, was installed in March and already is used heavily in ongoing research projects and patient care.

“The gamma camera is noninvasive and very safe and describes the enemy in intimate detail,” said Dr. Stephen Withrow, director of the Robert H. and Mary G. Flint Animal Cancer Center. “It is a valuable tool that uses the physiology of the cell for its imaging, giving us a clearer picture of the extent of disease in a patient, prognosis for the patient, and best pathway to treatment. Patients who can benefit from the camera include those with cancer, infections, blood supply problems, liver shunts, and much more. We are very excited to have this valuable tool to help enhance the care and treatment of our patients.”

“Right now, we are imaging 10 to 15 patients every week, and we already can see that our diagnostic powers have increased substantially.”

The installation of the gamma camera at the VTH builds on the nuclear medicine tradition that began at Colorado State in 1993. Clinicians first were using a planar gamma camera and then added a CT scanner. Like those cameras, the new camera is a detector that measures radioactivity coming out of a patient’s body. But

the advanced Hawkeye gamma camera, which offers improvements beyond the planar and CT technology, certainly didn’t seem within the budgetary constraints of the Nuclear Medicine Service – the purchase price of the camera alone is \$500,000, plus costs associated with staffing and maintenance. The first step in the camera’s journey to Colorado State began when a researcher at the Mayo Clinic happened to glance at an interesting article in the morning paper. That researcher, Dr. Doug Collins, was using the gamma camera in his investigative work but needed a larger study group.

“I had begun imaging cats and dogs at the Mayo Clinic in 1998,” said Dr. Collins. “Dr. Mark Wenner, a local veterinarian, was interested in the work I was doing using vitamin B-12 uptake as a diagnostic tool for cancer patients, but he only had a few animals we could diagnose. The Mayo Clinic wasn’t interested in looking at spontaneously occurring cancer in animals, so I was stuck. One day, though, an article about Dr. Greg Ogilvie caught my eye. Greg was working with cancer in animals, so I called Dr. Wenner. He had heard Greg speak, was very impressed with him, and thought I should pursue a collaborative project. It was all serendipity.”

In 1999, Dr. Collins contacted Dr. Ogilvie, director of the Medical Oncology Laboratory at the VTH, and before long, a collaborative study on B-12 (see related story on page 4) was up and run-



From left to right, John Ubrig, nuclear medicine technician, and Drs. Doug Collins and Phillip Steyn show off the Veterinary Teaching Hospital’s new Hawkeye gamma camera.

ning. The hospital’s CT scanner was used as the primary technology, but Dr. Collins wanted the physiological images only a gamma camera could provide. The task was to get Colorado State such a camera. Working closely with Dr. Phillip Steyn, director of the Nuclear Medicine Service at the VTH, Dr. Collins was able to arrange for transfer of one of the Mayo Clinic’s cameras to Colorado State. Money for the camera initially came from a variety of departments and programs within the College, though efforts are underway to develop private support for the gamma camera.

“Right now, we are imaging 10 to 15 patients every week, and we already can see that our diagnostic powers have increased substantially,” said Dr. Steyn. “In addition to our regular patient load, we are participating in a number of research projects including the vitamin B-12 study; a project in which we are labeling an antibiotic with technetium to see if we can target and treat bacterial colonies (infection) inside patients; and collaborative work with a research group in London on imaging other infections.”

The Hawkeye gamma camera currently is located within the existing Veterinary Teaching Hospital. When the new Animal Cancer Center is completed next year, the camera will be moved to the new facility, at which time it also may be upgraded to simultaneously collect CAT scans for enhanced imaging. ■

Researcher Radiates Excitement About Collaboration with University

Ask Dr. Doug Collins about vitamin B-12, and you will get an interesting look at a piece of medical history. In the late 1800s, pernicious anemia was a deadly condition until one Dr. Minot made the connection that people who didn't eat meat seemed especially prone to the disease. He prescribed three pounds of liver per day to patients and cured them of their heretofore fatal illness (hence, eat your liver, as mothers once prescribed).

Though they didn't know it at the time, what these patients were finally getting enough of was vitamin B-12. This vitamin is essential to the cell's life support system. B-12 is necessary to make DNA, provides energy for the cell, and regulates the methylation reaction – a reaction essential to developing fetuses and cancer cells alike.

It's the cancer connection that caught Dr. Collins' interest. He hypothesized that cancer cells would have a greater uptake of vitamin B-12 than normal cells. If that was the case, vitamin B-12 might be able to be tagged with radioactive material and localize in growing tumors in patients. Likewise, the vitamin could be tagged with chemotherapy agents that then would be taken up in greater quantities by cancer cells. Dr. Collins, who is a consultant at the Mayo Clinic and an assistant professor in diagnostic radiology at the clinic's medical

school, found himself with a great idea but with limited means to pursue it. That's when Colorado State University came into the picture.

Dr. Collins had scanned mice injected with B-12, but he wanted to look at spontaneously occurring tumors. Initially, he worked with Rochester veterinarian Mark Wenner and scanned a few patients. Most interesting was a mother/daughter feline pair diagnosed with feline breast cancer. The scan found the daughter had a mammary carcinoma. Dr. Collins wanted to expand his animal work, but the Mayo Clinic was not interested in animal studies being done in Rochester. Human studies were difficult to coordinate, and Dr. Collins thought he might be at an impasse. Then he read about Dr. Greg Ogilvie and the cancer work at Colorado State University and a collaborative connection was made.

"Colorado State University is so important to my research," said Dr. Collins. "It's very exciting to have my research help cats and dogs while at the same time advance cancer therapy in humans. It's also very exciting to work with Greg (Ogilvie), Steve (Withrow), and Phillip (Steyn). Colorado State is a unique place and the people there are just incredible. It's a phenomenal institution with just tons of great research in progress."

Dr. Collins said the best thing about his partnership with Colorado State is that it will greatly accelerate his work, bringing new possibilities to cancer patients sooner than he once thought possible.

"When we look at vitamin B-12 as an



Dr. Doug Collins watches over a patient undergoing a scanning procedure at the Veterinary Teaching Hospital.

imaging agent and a therapeutic agent, we can show these models work in real patients with naturally occurring tumors," said Dr. Collins. "Having the cancer patients at Colorado State as models for this study is truly a win/win for people and animals. The animals have state-of-the-art diagnosis and treatment for their cancers, and we are learning from them new applications for human medicine."

Dr. Phillip Steyn, director of the Nuclear Medicine Service relayed a recent example of the positive effects of the B-12 study.

"We recently had a dog come in with a tumor on its soft palate," said Dr. Steyn. "Before going into surgery, we injected radioactive B-12 and scanned the dog so the surgeons would have a definitive map of the tumor's attributes. But we also found a surprise – additional cancer in a nearby lymph node. The radioisotopes tagged to the B-12 lit up like a Christmas tree in this secondary tumor. Before the gamma camera and this study, we may have missed the spreading cancer and reduced the chances of a good outcome. So we are very excited about this collaborative project with Dr. Collins and the improvements in cancer diagnosis and treatment we will see for our four-legged patients and their owners." ■

It's the cancer connection that caught Dr. Collins' interest. He hypothesized that cancer cells would have a greater uptake of vitamin B-12 than normal cells. If that was the case, vitamin B-12 might be able to be tagged with radioactive material and localize in growing tumors in patients.

Collaborative Program Leads to Innovative Research in Orthopedics

Collaboration among researchers at any major institution is one of the many keys to success. This also is true at Colorado State University, where many programs cross departmental and college boundaries to share expertise, ideas, and resources. One of these programs is the laboratory for musculoskeletal research, which brings together faculty from the College of Engineering and the College of Veterinary Medicine and Biomedical Sciences to create a truly unique program

“What we do is apply engineering principles to medical problems.

Biomedical engineering includes such things as the design of instruments to measure blood flow, the design of joint replacements, the development of materials such as vascular stents and bone grafting, and the function of materials in the body.”

in biomedical engineering education and research.

Biomedical engineering is based on the application of engineering and scientific principles to improve human health. Combining these principles with veterinary medicine at Colorado State leads to a diversity of research projects and the potential for improved human and animal patient outcomes in everything from hip replacements to artificial skin grafts.

The College of Engineering and CVMBS have been cooperating on a casual basis for years, but when Dr. Susan James joined the engineering faculty in 1994, one of her goals was to revitalize the connections between the

two colleges and formalize a program in biomedical engineering. A large grant funded the purchase of a materials testing system, the Veterinary Teaching Hospital provided space for the equipment, and a materials research program began to evolve. In 1999, the Biomedical Engineering Program was launched. Last year, Dr. Donna Wheeler joined Dr. James, and the two now work with many faculty members at CVMBS in a variety of research and educational programs.

Today, that collaborative effort is becoming further cemented with the renovation of laboratory space at the Dairy Barn building that will provide a permanent home to the musculoskeletal laboratory.

“What we do is apply engineering principles to medical problems,” said Dr. Wheeler. “Biomedical engineering includes such things as the design of instruments to measure blood flow, the design of joint replacements, the development of materials such as vascular stents and bone grafting, and the function of materials in the body. What is really exciting about our work here is that we are able to help animals and people and provide our students with a wonderful living laboratory in which they can really learn and see biomedical engineering in action in real patients.”

Research areas in biomedical engineering at Colorado State include:

- A study of total joint replacements. In this study, researchers are evaluating the performance of bone and hip replacements retrieved from dogs that have died. Some of the hip replacements

are up to 12 years old and yield clues as to how well the devices are performing over time and what can be done to refine both design and performance.

- Looking at better ways to clinically enhance cartilage repair techniques using the horse as a model.

- Looking at growth factors in seeding cells into polymers for bone repair. This work may help researchers develop new ways to stimulate and strengthen bone growth and repair. Researchers in this area also are involved in an allograft (where donor bone is used to replace diseased bone) study to examine the strength of bones used in limb-sparing surgeries for cancer and to understand better how the bone heals.

- Other studies include methods to deliver growth factors to skeletal sites, the delivery of antibiotics to bone infections using different polymers, and research in the histology laboratory that examines cartilage regeneration.

College faculty members collaborating with the laboratory include Drs. Simon Turner, Randy Fitch, Elizabeth Pluhar, Chris Kawcak, Stephen Withrow, Bill Dernell, David Frisbee, and Wayne McIlwraith. Former collaborators, no longer with the program but instrumental to its growth, are Drs. Erick Egger and Peter Schwarz.

To learn more about the Biomedical Engineering Program or the laboratory for musculoskeletal research, visit them online at www.engr.colostate.edu/depts/bep/. ■

“We are able to help animals and people and provide our students with a wonderful living laboratory.”

Dr. Lance Perryman Takes Helm of College

A new dean for the College of Veterinary Medicine and Biomedical Sciences at Colorado State University is now at work. President Albert C. Yates announced earlier this fall that Dr. Lance E. Perryman from North Carolina State University succeeds Dr. James Voss, who retired in October of this year.

“After a comprehensive search involving many strong candidates, we selected an individual who has the experience, understanding, and vision to keep the College a leader in the fields of veterinary medicine and the biomedical sciences,” said President Yates.

Dr. Tony Frank, vice president for research and information technology, noted, “Dr. Perryman has an appreciation for the commitment to excellence in research, teaching, and service that has made the College of Veterinary Medicine and Biomedical Sciences one of the finest in the nation.”

Dr. Perryman had been with North Carolina State University's College of Veterinary Medicine since 1994 as professor and head of the Department of Microbiology, Pathology, and Parasitology. Prior to that, he was associate dean for research and graduate education and director of the Animal Health Research Center in the College of Veterinary Medicine at Washington State University.

Dr. Perryman's research has targeted immune deficiency disorders and the infectious agents that cause diseases in animals and people with inadequate immune systems.

“Veterinary medicine has entered an era of remarkable challenges and unprecedented opportunities,” Dr. Perryman said. “As the College of Veteri-

nary Medicine and Biomedical Sciences at Colorado State pursues its vision and fulfills its mission, I expect we will resolve national challenges and create new opportunities. I look forward to being part of this leadership effort.”

A native of Tacoma, Washington, Dr. Perryman received his D.V.M. and Ph.D.

from Washington State University in 1970 and 1975, respectively, and his M.S. from The Ohio State University in 1973.

He is a member of several prestigious professional organizations including the American College of Veterinary Pathologists, the American Association of Veterinary Immunologists, the American Veterinary Medical Association, and the American Association for the Advancement of Science.

Dr. Perryman is taking over leadership of a large venture. The College of Veterinary Medicine and Biomedical Sciences has a staff of 686 and consists of four academic departments with eight areas of academic and research priority, including:

- Cancer: Causes and Treatment
- Environmental and Radiological Sciences
- Infectious and Immunological Diseases
- Neurosciences
- Reproductive Biology and Genetic Engineering
- Professional Veterinary Medical Program
- Orthopedics
- Human-Animal Bond

Consistently ranked among the best veterinary schools in the nation, *U.S. News & World Report* recently ranked the College second in the U.S. in its latest survey of veterinary graduate schools.

The College of Veterinary Medicine and Biomedical Sciences is committed to educating the next generation of biomedical researchers and veterinarians to achieve the highest standards in their fields; and to providing outreach support to the community to assure the health and well being of animals and humans through public health and animal welfare initiatives. ■



Dr. Lance Perryman with Tori.

“As the College of Veterinary Medicine and Biomedical Sciences at Colorado State pursues its vision and fulfills its mission, I expect we will resolve national challenges and create new opportunities. I look forward to being part of this leadership effort.”

Dr. Perryman Reflects on Challenging Work Ahead

(Editor's note: As Dr. Lance E. Perryman takes on leadership of the College of Veterinary Medicine and Biomedical Sciences, he took time out to answer Insight's questions about his vision for the College, his immediate goals, and a bit about himself.)

Q. What were the factors that motivated you to apply for the dean's position at the College?

Dr. Perryman: The College of Veterinary Medicine and Biomedical Sciences has an outstanding reputation as a knowledge enterprise. The clinical care, veterinary and biomedical research, and undergraduate, graduate, and D.V.M. programs are outstanding. Students, staff, and faculty possess a remarkable work ethic and are committed to excellence.

I was very excited about the opportunity to come to Colorado State University and become a part of the tradition of academic and research excellence here. Also, I'm from the western United States – Washington state – and though my wife, Shirley, and I enjoyed our seven years in North Carolina, we were ready to return to this part of the country.

Q. It must seem a little overwhelming to take on a College of this size and scope. What are your immediate goals as you step into the role of dean?

Dr. Perryman: My overarching goal is to have Colorado State University acknowledged as the number one veterinary school in North America. One of my more immediate goals is the completion of the departmental reorganizations and selection of leaders for those departments. Another immediate goal is the refinement of the master plan that will define the space and facilities needs of the College, as well as bolster resources for critical programs that are addressing some of society's most significant needs.

Q. What would some of these needs be?

Dr. Perryman: Well, food safety is one. Another is emerging infectious diseases such as chronic wasting disease, scrapie, vector-borne diseases such as

West Nile virus, and a host of others. We also have major problems to address in the area of environmental health. Another important social need the College is addressing is the emergence of the human-animal bond as a relatively new factor in the lives of people and animals.

In all of these areas, the College is well positioned, and I am keen to see our leadership role maintained.

Q. Are there areas into which you would like to see the College expand?

Dr. Perryman: The College as a whole is in excellent condition. The leadership here has done a very good job of identifying problems and sources of funding, as well as competing for that funding. When you look at the number of Programs of Research and Scholarly Excellence located within the College, and the key players involved who carry with them international reputations, you can see success spread across the entire spectrum of research and academic programs within the College.

However, I do think two additional areas of research that the College is just beginning to address will play an important role in our future. These areas of research are in genomics and proteomics, fields of study that will enable greater advances against the more intractable diseases of humans and animals.

Q. Any changes on the horizon for the Veterinary Teaching Hospital or the Professional Veterinary Medical Program?

Dr. Perryman: The Veterinary Teaching Hospital is undergoing rapid expansion, so the big change there will be the construction of the new wing that will house the Animal Cancer Center and Argus Institute. As far as the PVM program, I'd like to pay more attention to developing the business skills our students need to help them be successful in their practices.

Q. Dr. Voss has been dean of the College since 1986 and held other leadership positions within the College prior to

that. Is it a little intimidating to step into his boots?

Dr. Perryman: I am honored to be the one taking Dr. Voss' place as dean. Dr. Voss has done so much for the College, there is no doubt about that. He knows everything about the College and when faced with a challenge, he was always able to quickly garner the resources and people needed to resolve the problem. I know I will be on a steep learning curve, but I am thrilled to be climbing it. There is an excellent leadership structure in place at the College that will facilitate my transition and help me step into the role of dean quickly and effectively.

Q. How would you describe your personal style?

Dr. Perryman: I think people would describe me as a good listener, good on follow through, and organized.

Q. When you aren't busy tending to the business of the College, what do you like to do?

Dr. Perryman: When I moved to North Carolina, my passion was Civil War history, and that was a wonderful area of the country to visit and study historic sites. Moving to Colorado, I'm interested in learning more about the history of the West, particularly the 1800s era. I also enjoy college sports and understand there is quite a good women's volleyball team here. I enjoy scuba diving, too, and would like to get involved with that again.

Q. Tell us a bit about your family.

Dr. Perryman: My wife Shirley is a registered dietician and a highly accomplished quilt artist. Some of her quilts have been on international tours and displayed in quilting magazines. I have two grown daughters, both with business degrees. Kristin lives in New Jersey and works for Kraft, while Lyssa lives in Arlington, Virginia, and works for a consulting company in Marketbridge, Maryland.

(Insight welcomes Dr. Perryman on board and wishes him the best of luck.) ■

Four-Legged Cancer Survivors Lend a Helping Paw at Groundbreaking

It wasn't your typical groundbreaking ceremony. After the speeches and the thank yous and nice words, the honored guests fought over a piece of meat, peed on a cameraman's leg, shook their hard hats to the ground, and bit their shovels. But it was OK, because dogs were the guests of honor.

Animals and animal lovers alike had reason to celebrate on October 3 when Colorado State University broke ground on its long-awaited new wing to the James L. Voss Veterinary Teaching Hospital. Actual groundbreaking responsibilities were handled by Murphy, a 4-year-old Great Dane and cancer survivor, and Truman, a 3-year-old Jack Russell terrier. With hard hats on and shovels in mouths (if only for a second), the dogs performed the ceremonial duty with flair and a style all their own. And the crowd loved it.

The new 35,000-square-foot, two-story addition will house the Robert H. and Mary G. Flint Animal Cancer Center, the Argus Institute for Families and Veterinary Medicine, and the Charles R. Shipley, Jr. and Lucia H. Shipley Center for Complementary Medicine and Natural Healing. Construction is targeted for completion in October 2002 and occupancy for November 2002.

For the past three years, the College of Veterinary Medicine and Biomedical Sciences has been engaged in a private and public campaign to raise \$11 million for the much-needed new facility.

Cancer-surviving canines Murphy, left, and Truman, along with their owners and other well-wishers, go doggone crazy at the Veterinary Teaching Hospital's groundbreaking ceremony.



The campaign enlisted the efforts of well-known personalities such as Gen. Norman H. Schwarzkopf, Hollywood's Bart the Bear, Gov. Bill Owens, and New York artist William Wegman, all of whom volunteered their time and talents for public service ads.

The new addition will include examination rooms, state-of-the-art research laboratories, a special multipurpose training and lecture room, tumor tissue processing and archiving, and magnetic resonance imaging and nuclear medicine capabilities not available elsewhere in the world. The second floor will house office and administrative space. The James L. Voss Veterinary Teaching Hospital also will get a face lift with a new exterior front façade of brick and stucco, a remodeled entrance, and an expanded, remodeled client waiting room.

Since the 1960s, the College of Veterinary Medicine and Biomedical Sciences has conducted innovative cancer research and provided state-of-the-art treatment for companion animals, moving from research that identified the types of cancers affecting pets to the prevention, diagnosis, and treatment of cancer in animals. Over the years, pioneering work done by the staff of the Animal Cancer Center also has led to important advances in the treatment of human cancers.

Actual groundbreaking responsibilities were handled by Murphy, a 4-year-old Great Dane and cancer survivor, and Truman, a 3-year-old Jack Russell terrier. The dogs performed the ceremonial duty with flair and a style all their own.

Dr. Voss and several guests at the groundbreaking ceremonies discuss some of the finer details of the new wing plans.



Argus Institute Welcomes New Director, Assistant Director

Veterinary faculty also have devised dietary supplements that support cancer treatments and improved and refined the use of chemotherapy and radiation therapy for pets. The areas of complementary and alternative medicine are increasingly important aspects of ongoing cancer research. The Shipley Center for Complementary Medicine and Natural Healing will focus on the scientific evaluation of a broad range of natural medicines and therapies.

Support of the human-animal bond in teaching, client services, and outreach is the role of the Argus Institute for Families and Veterinary Medicine. The new facilities will enable the Argus Institute to expand its services including veterinary education, client support, continuing education, and a new program in animal behavior.

Some key facts about the new wing:

- 34,700 square feet in two floors
- 12 new, fully equipped exam rooms
- Observation rooms for training and teaching
- New office and administrative space on the second floor
- Ten new laboratories including:
 - Tissue archiving laboratory
 - Bone research laboratory
 - Bioengineering laboratory
 - Cancer research laboratories
- Nuclear Medicine Suite
- Magnetic Resonance Imaging Suite
- Millennium VG Coincidence Imaging Gamma Camera Room
- Special multipurpose classroom and training room equipped with video presentation capabilities and moveable walls to tailor space for each event
- Dark room for image analysis
- Separate entrances for the Argus Institute and the Flint Animal Cancer Center
- Pet Tribute Garden: landscaped garden area with brick walkway located in front of the new wing. ■

The College of Veterinary Medicine and Biomedical Science's Changes: Support for People and Pets program, one of the nation's first pet loss support programs, has been renamed the Family Support Service. Part of the Argus Institute for Families and Veterinary Medicine at Colorado State, the service also welcomes the return of one of the original founders, Dr. Tamina Toray, as director of the program, and Teresa Nelsen as assistant director.

The Family Support Service offers both pet loss support and animal behavior management consultations to clients of the Veterinary Teaching Hospital as well as educational programs for veterinary students and practicing veterinarians.

Dr. Toray has strong ties to Colorado State and its Veterinary Teaching Hospital. She graduated in 1980 with a bachelor's in human development and family studies, then went on to pursue a master's in counseling from Truman State University in Missouri. She returned to Colorado State as an instructor in the Department of Human Development and Family Studies and co-founded the Changes: Support for People and Pets program in 1984 at the Veterinary Teaching Hospital.

In 1992, Dr. Toray earned a doctorate in family studies at Oregon State University. Since then, she has taught in the psychology department at Western Oregon University and served as chair of that department.

"This has been a full-circle experience for Dr. Toray. It's a real coming-home celebration to have her back at Colorado State to direct the program she helped bring to life," said Laurel Lagoni, director of the Argus Institute.

The Changes program originally was founded to reach out to pet owners struggling with the emotions accompanying the terminal diagnosis or recent death of

a pet. The program gained international recognition and respect for providing a much-needed service to an overlooked group.

The program has since grown to offer the world's most comprehensive, on-site family support service and professional education curriculum associated with a veterinary teaching hospital, teaching veterinary students important communication skills, crisis intervention, and loss and grief counseling.

"It's very exciting to see how much the program has grown in the 15 years since I was involved," said Dr. Toray. "I look forward to being part of the dynamic team that comprises the Argus Institute today."

Nelsen joins the Argus Institute staff as assistant director of the Family Support Service. Nelsen is completing her doctorate from Kansas State University in marriage and family therapy. She received a Master of Education from the University of Minnesota at St. Paul in 1993 and a Master of Science in Marriage and Family Therapy at Kansas State in 1999. Her position with KSU's College of Veterinary Medicine gave her extensive experience in understanding the human-animal bond, pet loss, and grief.

"Teri brings many skills to her role with the Argus Institute," Lagoni said. "She will be coordinating the clinical support programs, teaching, and helping us build a national mentoring program to help veterinarians make their practices more bond-centered."

The Argus Institute for Families and Veterinary Medicine is comprised of the Family Support Service and the Bond-Centered Practice Education and Resource Center. Many of the "standards of care" techniques for providing emotional support for pet owners now used by veterinarians nationwide were developed by the team at the Argus Institute. ■

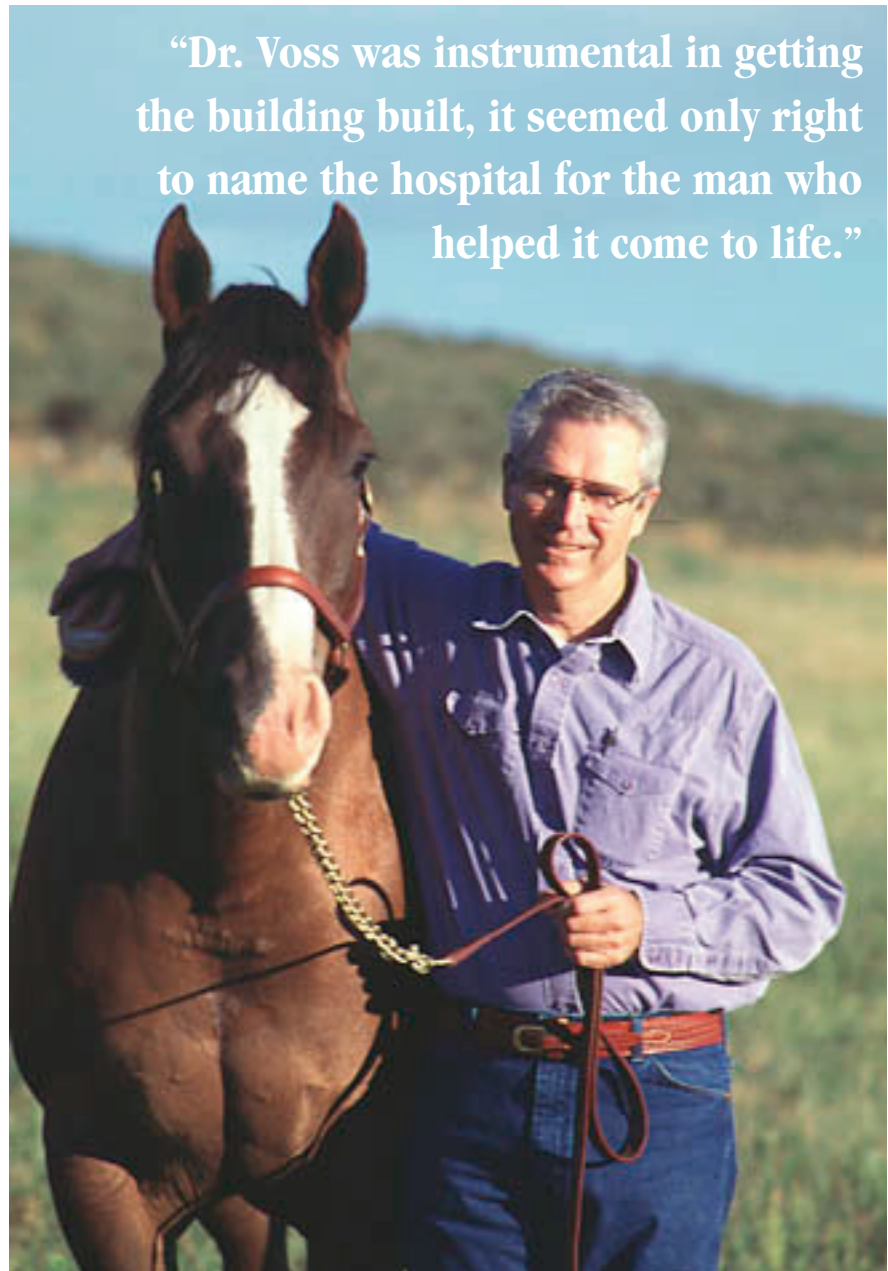
Veterinary Teaching Hospital Named for Dr. James Voss

Paying tribute to an individual who has devoted his professional career to a single cause is oftentimes hard to do. Such individuals aren't interested in monetary awards or public recognition. They do what they do because they deeply believe it's important and feel they can make a difference.

Such is the case with Dr. James Voss, who worked tirelessly for 43 years to help turn the College of Veterinary Medicine and Biomedical Sciences into the world-class institution it is today. He, of course, will be the first to say he didn't do all that much – that he was surrounded by an energetic and talented faculty, experienced and dedicated staff, and eager students. But those at Colorado State University who had the pleasure of working with Dr. Voss know firsthand the importance of his leadership, guidance, and never-wavering energy to the success of the College.

To honor his career at the College, and all his accomplishments, one very important building now bears the newly retired dean's name. After being granted approval by the State Board of Agriculture, the James L. Voss Veterinary Teaching Hospital was officially dedicated on Sept. 14, several weeks prior to the dean's announced retirement effective Oct. 8, 2001.

"There is no doubt that the University as a whole wanted to make a fitting gesture to Dr. Voss," said Dr. Anthony Frank, vice president for research and information technology at Colorado State University and former associate dean of the College. "The Veterinary Teaching Hospital came to lots of people's minds because it is emblematic of the heart and soul of the College. The hospital is our interface with the public, it is the culmination of the professional program, and it is where we turn out world-class veterinarians and scientists. In addition, Dr. Voss was instrumental in getting the building built, it seemed only right to name the hospital for the man who helped it come to life."



"Dr. Voss was instrumental in getting the building built, it seemed only right to name the hospital for the man who helped it come to life."

In a written proposal to the State Board, Colorado State officials said Dr. Voss' accomplishments "are a great source of pride" for the University. They added that the finest compliment that can be paid, personally, to Jim Voss is in regard to his honesty and integrity . . . The Green and Gold of Colorado State University are etched upon his spirit."

Dr. Voss began his career at Colorado State in 1958 as an instructor in the Department of Clinical Sciences, after graduating from the University with his Doctor of Veterinary Medicine degree. During his tenure, Dr. Voss advanced through faculty positions, eventually serving as head of the Department of Clinical Sciences. In 1986, he was appointed dean of the College. ■

A RBL Produces Another First: Foals Born from Frozen Eggs

The first-ever foals produced from frozen eggs were born this summer at the College's Animal Reproduction and Biotechnology Laboratory. The eggs were harvested from a mare, frozen, thawed, and then implanted into surrogate mothers.

Researchers say this is an important breakthrough since now scientists will be able to preserve reproductive material from the female as well as the male. The technology has potential beyond the horse industry in possibly helping to preserve endangered species worldwide, which has been one of the goals of Colorado State's Preservation of Equine Genetics program since it began in 1996.

Different surrogate mothers selected from the Colorado State ARBL herd carried siblings Vitreous and Ethyl, a colt and a filly.

"This is a tremendous breakthrough," said Dr. Ed Squires, faculty member and coordinator of the Preservation of Equine Genetics program. "Essentially, with this process, we can now do for the female mammal what we've been able to do for the male: provide flexibility in reproduction."

Many owners or breeders want to maintain a mare's line, either because it is rare and highly desirable or for the genetic qualities that make the horse a

performer. Often the mare's lineage is equally as important as that of the stallion. But unlike stallions that can produce millions of sperm for many years, mares have a limited number of eggs, or oocytes, and fewer years for reproduction. Typically, mares are bred for the first time at around 3 years of age and deliver between 8 and 10 foals in a lifetime before they are "retired."

Because the oocyte cell is so much more complicated than a sperm cell, the process of cryopreservation is much more difficult.

"The cryopreservation process we used in this case is called vitrification," said Dr. Lisa Maclellan, a postdoctoral fellow from Queensland, Australia, and coordinator of the project. "We first gathered the contents of an ovarian follicle using an ultrasound probe. From the contents, we separated out the single-cell oocyte under a microscope."

The oocyte was placed onto a cryoloop – which is about the size of a sewing needle – and quickly dipped into liquid nitrogen to be flash frozen.

Months later, the oocytes were thawed and implanted in two mares from the ARBL stables that had already been inseminated with material from a donor

Many owners or breeders want to maintain a mare's line, either because it is rare and highly desirable or for the genetic qualities that make the horse a performer.

stallion. The stallion chosen to inseminate the mares is an Arabian named Sylekt, belonging to Lucy Whittier of California, a longtime supporter of the PEG program and ARBL. The mares carried to full term and delivered healthy, normal foals. The foals already have been placed with adoptive families.

"With the success of this process, we will be able to offer horse owners more reproduction options," said Dr. Elaine Carnevale, an assistant professor in the Department of Physiology who also worked on the project. "They may want to preserve the bloodlines of mares that are genetically valuable or mares that are competing. This should be done while the mares are young and have healthy eggs. Freezing the eggs offers another method of preserving valuable genetics."

Dr. George Seidel, professor of physiology and an expert in animal reproduction, said the technique should be able to preserve eggs for thousands of years. Dr. Seidel cited research done earlier in mice where one group of embryos were frozen in liquid nitrogen and bombarded with four times the level of background radiation to simulate the passage of hundreds of years. The frozen embryos were thawed and implanted in surrogate mice, and offspring were successfully produced. ■



A surrogate mare is shown with one of the foals born from cryopreserved oocytes.

Growth Factor Research Challenges Long-Held Beliefs

There are many types of revolutionary people in this world. Some of the more famous use weapons and words to bring about change, while others rely upon scientific theory and experiment. Throughout history, many people of revolutionary science have been ridiculed and even punished. Galileo is perhaps the most famous of these, tried for heresy for preaching the doctrine that the Earth moves around the Sun.

At Colorado State University, Dr. Douglas Ishii also is one of these revolutionary scientists. His work in insulin-like growth (IGF) factors and their role in the development of the nervous system and regeneration of nerves, initially was subject to derision and disbelief. Today, however, the results of his team's investigations are changing the course of research into diabetes and

With quiet determination and persistence, Dr. Ishii and his team have given new hope to those suffering nervous system damage, whether from the devastating effects of diabetes or from sudden injury such as stroke.

other debilitating diseases. With quiet determination and persistence, Dr. Ishii and his team have given new hope to those suffering nervous system damage, whether from the devastating effects of diabetes or from sudden injury such as stroke.

"Our early work with IGFs began with trying to understand the basic physiology of the hormone in normal systems," said Dr. Ishii, a professor in the Department of Physiology. "We found that the hormone plays a general supportive role for the entire nervous system, protecting nerve cells from dying and assisting nerve cells in recovery after injury."

When Dr. Ishii came to Colorado State University in 1975, he switched the focus of his work to what would happen to living systems if IGF hormones were lost and what the effect would be on the nervous system. His theories led him to study diabetic neuropathy (see sidebar), where, for decades, high glucose levels were thought to be the culprit creating havoc for the nervous system. Dr. Ishii hypothesized that it actually might be reduced levels of IGF hormones. The work of his research team revealed a profound reduction in IGF gene expression in diabetic rats, and Dr. Ishii began publishing his controversial work and speaking at

professional seminars and conferences. His audience was less than receptive.

"It's quite something to go to a meeting and have people yell at you," Dr. Ishii said. "But the establishment was strongly vested in the glucose model, and we were proposing a radical theory. After many years, we came to a critical series of experiments to test our hypothesis and were able to show quite decidedly that when we treated rats with IGF hormones, we were able to prevent diabetic neuropathy despite

high glucose levels in the animals. We were on pins and needles, so those results were really exciting. We now have seen a shift in thinking at the National Institutes of Health and the National Juvenile Diabetes Foundation International, and they have new requests for proposals to study IGFs."

Today, though only experiments involving animals treated with IGFs have been published, a small human clinical trial has been completed in Australia and researchers are waiting for results to be published. Dr. Ishii said the treatment has been reported to have a positive outcome, but the study must undergo peer review. Still, he is awaiting results with guarded optimism.

Meanwhile, Dr. Ishii's work continues. In his laboratory, diabetic neuropathy research work is progressing, but

"After many years, we came to a critical series of experiments to test our hypothesis and were able to show quite decidedly that when we treated rats with IGF hormones we were able to prevent diabetic neuropathy."



Dr. Doug Ishii at work in his laboratory.

“If we can increase the levels of IGFs in diseased or injured systems, we may be able to slow or stop disease progression, or limit the damage caused by a traumatic event, improving the outcomes for patients with stroke and sudden injury.”

his team also is pursuing a new line of research that deals with the possibility of using IGF hormones to treat brain disorders and brain injuries. One particularly important project is the use of IGFs to prevent the secondary loss of neurons that occurs after the initial event, whether a stroke or other type of traumatic injury. This secondary loss, called the penumbra, occurs around the injury site and also far away at other sites in the nervous system. Treating stroke or other nervous system trauma is tricky business because doctors generally do not know the extent of the injury and are hesitant to do more than watch and wait. Because of the penumbra, watching and waiting can cause the initial injury to worsen and result in a poor prognosis for the patient.

IGFs can be used to treat brain injuries, but the process is practically medieval and doctors are loath to attempt it. Doctors must drill a hole in the skull, risk surgery and secondary infection, while not having a clear picture of the injury. IGFs are administered this way because it always has been believed that

the hormones were too large to cross the blood/brain barrier and had to be introduced directly into the brain. Dr. Ishii and his team, including postgraduate student Cynthia Armstrong, now have proven that IGFs can cross the blood/brain barrier. Drs. Bruce Pulford and Ray Whalen have developed an injury model using the rat and have shown that the hormone can get from blood into the brain in large enough quantities to prevent brain injury.

“We are really just at the tip of the iceberg with this research,” Dr. Ishii said. “This has a wide range of applica-

tions including stroke, Alzheimer’s, Parkinson’s, and traumatic injury. If we can increase the levels of IGFs in diseased or injured systems, we may be able to slow or stop disease progression or limit the damage caused by a traumatic event, improving the outcomes for patients with stroke and sudden injury.”

Dr. Ishii’s work recently received a boost when his research team received a \$718,000 grant from the Centers for Disease Control that will help establish an animal model for research into stroke and the usefulness of IGFs as treatment for stroke injury. ■

Understanding Diabetic Neuropathy

An estimated 16 million Americans have diabetes. Last year, the Centers for Disease Control and Prevention in Atlanta made headlines with the news that type II (adult onset) diabetes was now an epidemic in America – up 40 percent between 1990 and 1999. Even more frightening, between 20 and 30 million Americans are prediabetic (an impaired glucose tolerance that can lead to full-fledged diabetes).

Of those 16 million with diabetes, 10 percent have diabetic neuropathy and all are at risk of developing the disorder over time. Diabetic neuropathy is a debilitating complication of diabetes with symptoms that include unrelenting pain (the touch of a sheet on the skin can be excruciating), bladder dysfunction, impotence, muscle weakness, cardiac complications, and other motor-system related problems. In diabetic neuropathy, the nerves simply die back. The damage begins in the extremities – telltale signs include tingling and numbness in the feet and hands. The affected area can be

extremely painful. As the nerves die back, all feeling is lost. More than 80,000 amputations are performed annually because of diabetic neuropathy.

For many years, researchers believed that high glucose caused diabetic neuropathy. But controlling glucose levels seemed to offer only partial protection against neuropathy. Newer research from Colorado State University shows, however, that reduced levels of insulin-like growth factors seem to be central to the development of diabetic neuropathy. Diabetic rats were found to have reduced IGF gene expression in the liver, spinal cord, and nerves. Treatment with IGFs prevented neuropathy in these rat models, even when high levels of glucose were present. Thanks to the continued work of Dr. Douglas Ishii and his team, diabetic patients are pinning their hopes to IGFs as possible treatment for diabetic neuropathy. A small clinical trial recently was completed, with results to be published in the next six to eight months. ■

Center Adds TSE Program to List of Research Priorities

When the Center for Economically Important Infectious Animal Diseases (CEIIAD) was founded in 1998, chronic wasting disease (CWD) was barely on the radar screen. Today, CWD is in the headlines as select deer and captive elk are being destroyed and researchers scramble to come up with answers.

A new program for the study of prion-related diseases has been added to the CEIIAD as a response to growing concerns about CWD and other transmissible-spongiform encephalopathies including bovine-spongiform encephalopathy (BSE). The newest program fits soundly into the Center's overarching mission to conduct research using multidisciplinary approaches to study economically critical infectious animal diseases.

"The Center was founded to focus on diseases deemed critical to the agricultural producer and global trade," said Dr. Mo Salman, director of the Center and a professor of veterinary epidemiology in the departments of Environmental and Radiological Health Sciences and Clinical Sciences. "We decided to take a step-by-step approach, collaborating with other institutions to set priorities, develop funding, and establish research programs. The Center has grown in scope over the past three years, and we now have an internationally recognized research consortium."

In addition to TSE research, other research priorities of the Center are:

1. The Center is conducting several studies into vesicular stomatitis, a disease similar to foot-and-mouth disease that affects domestic animals including cattle, horses, and sheep. This is a List A disease meaning it is reportable and calls for restrictive movement and trade embargo against suspect animals. Researchers today know little about the disease in terms of transmission or prevention. Current studies should lead to better diagnostic techniques, greater understanding of risk factors, and the role of vectors in the spread of the disease.



Dr. Mo Salman

2. Microbacterial infections in animals are another area of focus for CEIIAD. Bovine tuberculosis and Johns' disease (or para-tuberculosis) are large problems for cattle and dairy herds. Researchers are trying to understand the diseases and develop improved diagnostic and treatment methods.

3. A broad area of study is the analysis of infectious animal diseases that affect food safety. A number of projects in this area are ongoing including studies of antimicrobial resistance, risk factors for potential contamination, estimating disease prevalence from pooled samples, and determining testing levels for food safety pathogens.

4. Brucellosis is a major problem for the bison herds of Yellowstone National Park, as well as a problem for elk and feral pigs of the American Southwest. Problems for producers arise when this highly contagious disease is transmitted from wildlife to domestic stock. Researchers at CEIIAD are working to

“We decided to take a step-by-step approach, collaborating with other institutions to set priorities, develop funding, and establish research programs.”

develop an effective oral vaccine and trying to understand the potential complications of a vaccine program.

5. Equine studies include an investigation into *Clostridium perfringens* in foals and work with the Bureau of Land Management to determine the health status of wild horses and burros designated for adoption programs.

The CEIIAD is comprehensive in its scope, though focused on specific disease-related goals. A multidepartmental and interagency team makes that possible. At Colorado State, principal faculty members involved with the Center are Dr. Salman; Dr. Paul Morley, an assistant professor with a joint appointment to the Department of Environmental and Radiological Health Sciences and the Department of Clinical Sciences; Dr. Josie Traub-Dargatz, a professor with the Department of Clinical Sciences; Dr. John Sofos, a professor with the Department of Animal Sciences, College of Agriculture; and Dr. Robert Ellis, a professor with the Department of Microbiology. Drs. Barb Powers, Ed Hoover, and Terry Spraker are part of the new TSEs program within CEIIAD.

Collaborative partners include the United States Department of Agriculture and its Animal and Plant Health Inspection Service; Colorado Wildlife Research Center; Rocky Mountain Regional Animal Health Laboratories; the USDA's Arthropod-Borne Animal Disease Research Laboratory and Plum Island Animal Disease Center; and the University of Wyoming. The umbrella program for CEIIAD is Colorado State University's Center for Veterinary Epidemiology and Animal Disease Surveillance Systems (CVEADSS).

Federal grants, private donors, and a pharmaceutical company provide major funding for CEIIAD. Federal money is allocated to the Center through the USDA's Cooperative State Research Education-Extension Services. For additional information about CEIIAD, visit their Web site at www.cvmb.colostate.edu/cveadss/. You can also e-mail them at cveadss@colostate.edu. ■

Veterinary Researchers Offer Preventive Measures for One Cause of Newborn Foal Mortality

A research team investigating a deadly gastrointestinal disease in newborn foals has released preliminary results regarding potential prevention measures for use by horse owners.

The Center for Economically Important Infectious Animal Diseases (CEIAD) at Colorado State co-sponsored the study of neonatal enteric clostridiosis, a common but very serious type of diarrhea that is highly aggressive and often fatal. The disease is caused by the bacteria *Clostridium perfringens* and *Clostridium difficile*. It typically occurs in newborn foals in the first two or three days of life and progresses rapidly.

“Diarrhea and colic in very young foals are signs suggestive of enteric clostridiosis, and foals showing such signs often require intensive veterinary medical care to survive,” said Dr. Josie Traub-Dargatz, a professor in the Department of Clinical Sciences and lead investigator in the study. “Treatment includes dietary restriction, intravenous fluid support, antibiotics, pain management, and round-the-clock nursing care.”

“Diarrhea and colic in very young foals are signs suggestive of enteric clostridiosis, and foals showing such signs often require intensive veterinary medical care to survive.”

Sufferers display signs such as drooping ears, hanging head and an inability to get up to suckle. Signs of colic, with or without diarrhea, also may appear and include teeth grinding, abdominal distention, getting up and down more than usual, rolling onto the back, or rolling over repeatedly. The foal also may suckle the mare then drop to the ground and roll on its back.

A characteristic of the disease is bloody diarrhea, a serious sign that may appear as watery, thick, and orange-colored or black, or contain bright red blood and have a very strong odor. These signs indicate the need for prompt medical attention.

“The high case fatality associated with the disease underscores the need for effective prevention strategies,” Dr. Traub-Dargatz said. “Until now, little has been known about the epidemiology of the disease, making it almost impossible to know what preventive measures could be taken.”

The research team advises that optimum perinatal hygiene may help reduce the risk for developing the disease and that quickly recognizing signs of the disease can lead to early diagnosis and treatment. While researchers at CEIAD continue their work in studying the disease, the following preventive measures are recommended for concerned horse owners:

1. Follow appropriate perinatal hygiene practices such as washing the udder, inner thighs, and backside of the mare prior to the foal suckling.
2. Use foaling stalls constructed of easily cleaned, nonporous materials.
3. Use artificial surfaces rather than dirt floors.

“Until now, little has been known about the epidemiology of the disease, making it almost impossible to know what preventive measures could be taken.”

4. Physically clean foaling areas. Spores produced by the bacteria cannot be killed with spray disinfectants, so a thorough, physical cleaning is necessary. This should be done before, after, and between each foaling.
5. Keep the stall as free of manure as possible after the birth.
6. Rather than stall confinement, foal mares on grassy pastures where the manure load is low.

Researchers point out that, while there is no vaccine for horses, farms with problems related to certain types of the bacteria can work out immunization strategies for brood mares and special treatments of newborns under the direction of a veterinarian.

Additional sources of funding for this ongoing research include the College Equine Research Advisory Council on the Use of Racing Funds for Colorado State University’s College of Veterinary Medicine and Biomedical Sciences, a private horse farm, and a pharmaceutical company. ■

Graduating Veterinarians Have Cornucopia of Career Options

Drs. Scott Severin, Margaret Wild, and David Dargatz all have two things in common. First, they are all veterinarians, and second, none of them actually works in a veterinary medical clinic. Instead, the three are part of a growing number of veterinary graduates with careers in industry, education, government, and public health.

"People typically think of veterinarians as simply providing health care for small and large animals," said Dr. Mo Salman, a professor of veterinary epidemiology with the departments of Environmental and Radiological Health Sciences and Clinical Sciences. "Veterinarians actually have a much greater responsibility not only to care for animals, but also to see to the public health issues that pertain to people and animals."

That dual responsibility leads to interesting career possibilities. Dr. Severin is with the U.S. Army Veterinary Corps, Dr. Wild is the first veterinarian hired by the National Park Service, and Dr. Dargatz works in monitoring and surveillance for the United States Department of Agriculture. Their career choices show the range of options open to veterinarians and also highlight the comprehensive nature of veterinary medicine in today's society.



Col. Scott Severin

Col. Severin is a 1979 graduate of the Professional Veterinary Medical Pro-

gram at Colorado State University. He received a Health Profession Scholarship from the U.S. Army and, following graduation, entered the Army as a captain after attending officer training school. He initially spent five years on active duty, stationed in Kentucky and Puerto Rico, before leaving the military to join a private practice in Denver. After two years in practice, Col. Severin and his family decided that the military life suited them better and he went back on active duty. That was many moves ago.

"I really love what I do," said Col. Severin, from his current post in Washington, D.C., where he is the deputy director of the Department of Defense Veterinary Service Activity. "My career with the Army has taken me and my family to many parts of the world, and the work has been rewarding and interesting."

When veterinarians initially join the Corps, their first assignment is to a military installation where they are responsible for animal care and food safety and inspection. Animal care includes complete health care for military working dogs and limited services to the pets of active duty and retired personnel in the area. After their first two assignments, young officers typically are sent back for special training in residency programs or for post-graduate work. Col. Severin returned to Colorado State where, in 1990, he received a master's degree in environmental health with an emphasis in wildlife disease.

His assignments then took him to the U.S. Embassy in Denmark, where he was responsible for food safety for northern European military personnel. In Denmark, Col. Severin oversaw the operations of a microbiology laboratory at a dairy that supplied milk to United States forces, traveled extensively to conduct on-site visits at commercial providers, and was involved with on-site inspections at meatpacking facilities. New assignments brought him back to the United States, except for a three-month

period when he was stationed in Somalia, where he provided care to the military's security dogs and provided food inspection services for the troops stationed there.

Today, Col Severin is dealing with more crisis situations than day-to-day operations. He is a member of a multi-agency task force that was established to deal with food safety issues including foot-and-mouth disease and bovine-spongiform encephalopathy. Recent world events are bringing to a head new issues in national food security. Right now, Col Severin said, is a very crazy time, but he is very happy with his choice and knows the importance of the work that lies ahead for the security of our nation's food supply and our nation's people.



Dr. Margaret Wild

The National Park Service has contracted with veterinarians over the years to provide assistance and expertise on an as-needed basis. Dr. Margaret Wild, a 1990 graduate of the Professional Veterinary Medical Program at Colorado State, is the first to be hired by the NPS full-time. Her job responsibilities range from developing white papers for Park Service representatives in Washington, D.C., to immobilizing oryx that needed to be relocated from the White Sands National Monument.

"What I mostly address are the health issues that occur for free-ranging animals," said Dr. Wild, who is the

wildlife veterinarian with the Biological Resource Management Division of the Park Service's Natural Resource Program Center. "Today, the National Park Service is really trying to infuse science back into the Service and make sound management decisions based on science. We are looking to protect the ecosystem and animals native to a particular ecosystem in a more realistic way."

In Dr. Wild's daily work, she serves as a consultant to the 385 parks that comprise the National Park Service. Mostly working via phone and e-mail, she answers questions regarding brucellosis vaccinations for bison in Yellowstone, disease problems of bighorn sheep in Rocky Mountain National Park, and mammalian response to insecticide use. Dr. Wild often is on the road, visiting the parks to help set up programs and demonstrate veterinary techniques to local park employees.

"As the National Park Service goes toward a science base, it's looking to involve more specialists and raise the bar for wildlife health," Dr. Wild said. "We also are involved with the interaction of domestic and wild animals where there is a potential for disease outbreak, emerging infectious diseases such as foot-and-mouth disease, animal welfare issues involving management decisions, and the development of research protocols."

One of Dr. Wild's ongoing projects is her work with a team of Russian scientists involved in a U.S. redirection program. The scientists had been involved in Soviet biowarfare efforts but are now working with U.S. scientists to find useful nonmilitary applications for their knowledge. Dr. Wild visited their institute in Kazan, and in turn, the Russian scientists visited laboratories in the United States. A special trip took them to Yellowstone National Park, where the differences between Russian and American park systems became very obvious.

"They don't allow the public in their national parks," Dr. Wild said, "so

it made for some interesting comparisons."



Dr. David Dargatz

Twenty years ago, if anyone had said to Dr. David Dargatz that he would spend most of his time working in front of a computer, he would have said they were crazy. But today, as an analytic epidemiologist for the USDA's Animal and Plant Health Inspection Service, that's just where most of his work gets done.

Dr. Dargatz received his D.V.M. from Washington State University. He had planned on specializing in large animal medicine and, when he came to Colorado State, completed a food animal residency program. He became interested in herd health and medicine as well as epidemiology and took on a temporary position at APHIS to learn more. That temporary position has lasted more than 10 years, during which Dr. Dargatz completed his Ph.D. in animal science and took on an affiliate faculty position with the College's Department of Clinical Sciences. His research interests today include the use of antimicrobial agents in herd health management, biosecurity, and a partnership with agricultural interests in Uruguay to conduct animal health studies.

"Antimicrobial resistance is one very important area of study," said Dr. Dargatz. "We are examining the potential risk of the agricultural use of antimicro-

bial agents, how those agents relate to emerging resistance in bacteria, and how their use may affect humans."

Dr. Dargatz and his colleagues are gathering data to determine the levels of antimicrobial-resistant organisms in healthy animals; characterize antimicrobial use in populations; and identify risky uses that may lead to resistance. The results of his surveys will provide scientific data for policy making on how and when antimicrobial agents are used in the agricultural industry.

In addition to this and other research projects, Dr. Dargatz spends a portion of his time interpreting data and deciphering what it means to APHIS, the agricultural industry, the veterinary community, and the consumer. He also takes requests for information on cattle health issues and responds to questions from producers and researchers at other agencies. Dr. Dargatz said another important part of his work is listening. He tries to be proactive and anticipate what emerging issues will result in a need for data.

"As the marketplace becomes global, these issues take on new urgency," Dr. Dargatz said. "We have to be aware of how animals are managed and potential problems that may result from management practices. International trade drives many of these issues, with the need for accurate data propelling our research forward."

A degree in veterinary medicine can lead to work in a private practice, but it also can lead to the open farmlands of Uruguay, a biowarfare site in Kazan, Russia, or a posting to faraway Somalia. Veterinarians are not just serving the public in the role of caring for animals, they also are helping to protect the public's health and safety and they serve as guardians against illness. Like Drs. Severin, Wild, and Dargatz, the veterinarians of today are serving on many fronts, and the possibilities continue to be boundless. ■

Transgenic Center Offers Services to Researchers

If you want to custom-order a transgenic mouse, it's not as easy as picking up the latest Lands' End catalog and dialing customer service, but it's getting close. Thanks to a state-of-the-art laboratory at the College of Veterinary Medicine and Biomedical Sciences, researchers looking to obtain transgenic mice for research purposes have their source close at hand.

The Transgenic Core Center provides transgenic mice to on- and off-campus researchers who are looking at genes and the specific roles played in living systems.

"We are the only facility on campus that provides this service, and we want to get the word out," said Dr. Terry Nett, associate dean for research and graduate education at the College. "Many in the campus community, and other near-by research centers, are not aware of this facility. They are interested in doing research with transgenic animals, but are put off by the expense and expertise required. They either give up or look elsewhere. We think they might find our facility useful."

The Transgenic Core Center is located in the College's Animal Reproduction and Biotechnology Laboratory on the Foothills Research Campus. Drs. Dick Bowen, Russ Anthony, and Colin Clay and technician Michelle Sims operate the Center.

The idea behind transgenic animals is simple, though the techniques are difficult. A researcher provides clones of the gene he or she is interested in, then the Center staff puts the gene in the appropriate vector and incorporates it into a mouse genome. Once the gene is established, a portion of the offspring of the genetically engineered mouse population will express that gene. Researchers

then can study and better understand the effects of specific genes.

One dramatic example of research being done with transgenic mice is a study of the role of leptin in the body. Leptin is a hormone produced by fat cells. It is essential to the healthy functioning of the reproductive system and to maintaining proper body fat levels. Researchers are showing that mice with insufficient leptin levels become very large. Leptin's normal function in the human body is being looked at as one reason for weight gain in late middle-age as people become resistant to the effects of leptin, similar to diabetics becoming resistant to the effects of insulin.

"By using mice as models for humans, we have a better understanding of disease and how genetics can affect health," said Dr. Nett. "Transgenic mice provide an excellent tool for studying specific genes, helping researchers to clarify the role of those genes and the part they play in health and disease."

For additional information about the Transgenic Core Center, contact the Center at (970) 491-0276. ■

"Transgenic mice provide an excellent tool for studying specific genes, helping researchers to clarify the role of those genes and the part they play in health and disease."

College Receives Gift to Enhance Genetics Program

Throughout agricultural history, producers have used selective breeding to enhance and promote the genetic makeup of domestic animals. Breeding for selective traits was a tried-and-true but slow way to build herds and flocks with desirable traits. Today, scientists are studying other ways to strengthen the genetic stock of domestic animals. A recent gift to Colorado State University will help researchers at the College of Veterinary Medicine and Biomedical Sciences further

advance the understanding of genetics.

The estate of Henry H. Traubert recently donated \$500,000 to the College to create the Mabel I. and Henry H. Traubert Professorship of Animal Genetics. The gift is a partial distribution, and additional funding for the professorship is expected.

Mr. Traubert, who died in 2000 at the age of 97, was a poultry producer from Longmont, Colorado, who was interested in improving the genetics of agricultural

animals. The professorship will be used to fund a faculty position, with additional funding going to support research and outreach in the field of animal genetics. Mr. Traubert was particularly interested in educating producers about advances and new technologies available in genetic engineering. A recipient for the professorship has not yet been announced.

Colorado State and the College have a rich tradition of research into animal genetics, with a particular focus on agricultural animals. The Traubert gift will enable research, teaching, and outreach in this field to build upon the success of College programs to date. ■



DNA being inserted into an embryo.

C Comprehensive Online Career Services Available to Alumni, Students

Students and alumni of the College of Veterinary Medicine and Biomedical Sciences can take advantage of one-click job shopping, whether they are hunting down first-time employment or making a mid-life career change.

“The College has a variety of tools available online for our students and alumni,” said Ruth White, Career Services liaison for the College. “The Veterinary Jobs Database is probably our most popular page, but we have many other valuable resources that individuals can use to help them as they enter the job market or as they look for a change from their current situation.”

The Veterinary Jobs Database features more than 400 openings at any given time. The positions cover the gamut of industry, clinical, and academic, and information is updated regularly. Positions are both entry-level and experience-required and geographically cover the United States. The Web system requires a password, available to all alumni and students through the College’s Career Services office.

Another important online resource is the Veterinary Preceptorship Database.



Ruth White helps a student with career information.

Each year, approximately 300 preceptorships and externships are listed at the site, providing students with a wide array of opportunities for summer and holiday breaks.

In addition to the databases, the College’s Career Services online offerings include a comprehensive listing of links to professional organizations as well as other potential job listings. Support links include outplacement services, resume writing, relocation information, and much more.

“For people looking for a job, this is a great place to start,” White said. “We have so much information and resources available, we can really save our students and alumni a lot of time. We have

done most of the footwork for them, so they can focus their time and efforts in the most efficient manner.”

For students in the undergraduate microbiology and environmental health programs, resources are available as well at both the University’s main Career Services Web site and the College’s site. The job database is maintained at the University level, but support resources are provided through the College. Users can enter the University jobs database as a guest.

In addition to online services, White said in her position as career liaison, she offers one-on-one career counseling and can advise students and alumni on other services offered through Career Services, including resume workshops and the popular career fairs offered twice each year at the University. The next career fair is scheduled for January 23 and 24, 2002.

For more information about Career Services or to obtain a job database password, contact Ruth White at (970) 491-3919 or e-mail at rmwhite@careermail.colostate.edu. For online services, go to www.cvmb.colostate.edu and click on career services. ■

C lass Agent System Helps College Reach Alumni

Being a class agent may not be as glamorous as being a secret agent (martini, shaken not stirred), but it’s a heckuva lot safer and a good way to help the College of Veterinary Medicine and Biomedical Sciences continue to achieve its academic, research, outreach, and development goals.

Class agents represent their respective graduating classes from the Professional Veterinary Medical Program.

The agents act as liaisons between their classes and the College, helping to disperse information about class reunions and scholarship programs and build awareness for special College programs such as Paws for a Cause and Animals Battling Cancer. Debra Morehead, assistant director of development for the College, manages the program.

“It’s a great way to stay connected to your class and keep your class con-

nected to the College,” said Morehead.

Class agents help the College nurture and cultivate relationships with alumni and keep graduates connected to what is happening at the College. Most classes have agents now, with Dr. David Bartlett, a 1940 graduate, among the most dedicated. If you have questions about the class agent system, contact Morehead at (970) 491-2351. ■

New Insignia Reflects College's Dual Mission



COLLEGE OF VETERINARY MEDICINE AND BIOMEDICAL SCIENCES

The challenge to encapsulate the many facets of the College of Veterinary Medicine and Biomedical Sciences into a single design element has stymied many a graphic artist. Blending the education, outreach, and service components of veterinary medicine and biomedical sciences into one easily recognizable and eloquent symbol proved to be quite the task.

Nonetheless, designers prevailed, and the College is proud to announce its new insignia that blends the veterinary caduceus (to represent veterinary medicine) with a stylized representation of the DNA spiral of life (to represent biomedical sciences). The symbol is injected with modernism and a forward-looking appearance, while bringing with it a sense of tradition and a nod to the established culture of excellence at the College.

The insignia takes the place of the traditional veterinary caduceus which was sometimes used as a College mark, and the drawing of Chiron, also seen occasionally in publications. Standardizing the College mark will create a stronger graphic identity for the College, one that will become easily recognizable. Over the next several months, the insignia will begin appearing on College stationery, Web sites, and publications. It also will be printed on T-shirts and caps and used in promotional materials. ■

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College of Veterinary Medicine and Biomedical Sciences
Fort Collins, Colorado 80523-1601

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