SCOPES

FROM STETHOSCOPES
TO MICROSCOPES
TO THE SCOPE OF THE COLLEGE

SUMMER 2016

ONE VET: MANY HATS

Cornell University
College of Veterinary Medicine

'SCOPES SUMMER 2016

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'SCOPES

SUMMER 2016

COVER: DR. JAMES MORRISSEY '92, SECTION CHIEF OF EXOTICS AT CORNELL UNIVERSITY HOSPITAL FOR ANIMALS, AND FELICIA (SEE PAGE 22)

THIS PAGE: PRINCESS, A FELINE PARTICIPANT IN THE CATS FOR COMFORT PROGRAM (SEE PAGE 46)

Dr. Lorin Warnick,
Austin O. Hooey Dean of Veterinary Medicine

THE AUSTIN O. HOOEY DEAN OF THE COLLEGE OF VETERINARY MEDICINE

The deanship of the College of Veterinary Medicine was endowed in 2004 through the estate of Austin Hooey (1922–2004) to memorialize her love of animals and abiding interest in their welfare. Hooey was a retired Wall Street securities analyst who lived in Chatham, N.J. Her father, William C. Hooey, was a 1912 Cornell graduate in chemistry.

LOOKING AHEAD: GOALS FOR THE COLLEGE

It is with great honor and gratitude that I write this Dean's Message as the new Austin O. Hooey Dean of the College of Veterinary Medicine at Cornell University.

I want to use this moment to discuss what I see as some of the major challenges and opportunities our institution faces, and what I plan to do about them as your new dean.

As a college we need to be prepared for global, national, and regional trends that will affect the veterinary profession and colleges of veterinary medicine. Climate change, increasing population, growing economies, and advances in biotech and diagnostic technologies will all change the patterns of animal and human disease, food production needs, and the roles and opportunities for veterinarians throughout the world. Nationally, we face changes in demographics, the human-pet relationship, agriculture, and politics—all of which will have lasting effects on our profession. Regionally, in New York State, veterinary medicine is affected by reemerging agricultural sectors, shifts in the structure of dairy production and the equine industry, and impacts of upstate economic development. In addition to external trends, changes at the University, such as the growing focus on building a presence in New York City, as well as new cross-campus research collaborations, will impact our students and alumni for years to come.

With these elements in mind, we at the College are assessing our current priorities and planning how best to pursue opportunities and meet challenges ahead in basic and clinical research, international engagement, education, and clinical service. This planning effort will be a collaborative process, and will include voices from students, faculty, staff, and external stakeholders.

"THE COLLEGE'S THREE PRIMARY MISSIONS—RESEARCH, EDUCATION, AND CLINICAL SERVICE, ARE EACH CONNECTED TO, AND REINFORCED BY THE OTHERS."

The College's three primary missions—research, education, and clinical service, are each connected to and reinforced by the others. Research and discovery are part of the lifeblood of the University, and this College is no exception. Through original scholarship we identify and quantify human and animal health problems, discover mechanisms of disease, explore the complex relationships between pathogens and hosts, and find new treatment options. Our DVM students, participants in continuing education programs, and clients of our hospitals and diagnostic laboratory all benefit from educators, diagnosticians, clinicians and other faculty who are engaged in research. Their knowledge is up-to-date in their fields, providing fresh material for students and cutting-edge care to patients. We will continue to build on already strong basic and clinical research programs through key faculty appointments aligned with University initiatives in the life sciences and informed by new College priorities identified in our research planning discussions this coming summer. External funding programs are highly competitive and it will be critical to use our internal resources—much of which has resulted from generous philanthropic support—in a targeted way to lay the groundwork for high-quality external funding proposals.

Veterinary student debt-to-income ratio is one of the most significant issues affecting the veterinary profession in the U.S. We will take part in the national discussion of the problem while at the same time doing what we can here at the College. We will work to reverse the increasing trend in the ratio of student debt to starting salaries. Doing this will require a multi-pronged approach, including having more students enter veterinary college after three years of undergraduate studies, expanding scholarship support, improving financial literacy and business preparedness of our students and ensuring that our graduates are well-prepared for the best job and advanced training opportunities.

The Cornell DVM curriculum—both its content and delivery—will continue to be an important focus of mine. I plan to continue the momentum we have created around preparing our students for primary care clinical practice. This will be greatly enhanced by the new small-animal Community Practice Service facility currently under design and due to be completed in 2018. We will expand the use of this practice and our other hospitals to provide business, management and entrepreneurship training for our students. Collaboration with Cornell's new College of Business and excellent University entrepreneurship programs offers a unique opportunity to play a leading role in this part of veterinary education. Additionally, the digitation of knowledge offers challenges and opportunities. As we selectively make use of educational technology and expand the accessibility and reach of our teaching materials, we will also keep our focus on what works best for a given subject and preserve the in-person and hands-on instruction so essential in a medical education.

When I think about the College's trajectory, and the goals we would like to collectively accomplish, I am reminded of something our late President Garrett said during an interview with *Times Higher Education*: "When you are presented with options, choose the path where you can make the most difference, and that will bring you the most happiness and fulfillment." This is valuable advice, not only for individuals, but for an institution. When we look at the landscape, we should choose the things where we can make the greatest positive impact and the biggest difference in the world. I have no doubt that we are up for the task.

DR. KING: THE UNRIVALLED MASTER OF OBSERVATION

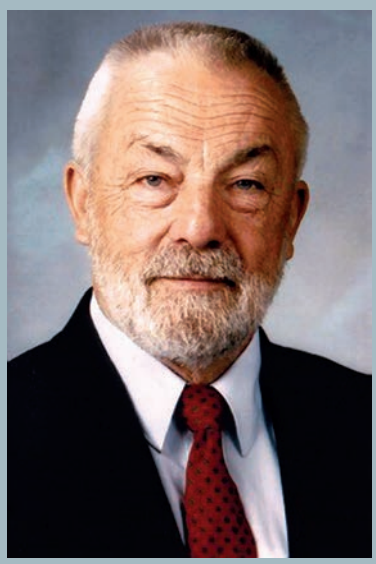
DR. JOHN KING AND DR. PETER OLAFSON (SEATED), FROM THE 1978 CVM YEARBOOK

Dr. John M. King, professor emeritus of pathology at the Cornell University College of Veterinary Medicine, passed away April 14 at the age of 89.

A veteran of the US Army, King earned his DVM at Oklahoma State University on the G.I. Bill. He came to the College in 1955 and worked here for 50 years, during which time he authored three textbooks and published numerous papers. King spent his sabbaticals in foreign countries that invited him to teach and do applied research. Over the years he earned a reputation for ground-breaking insights into disease.

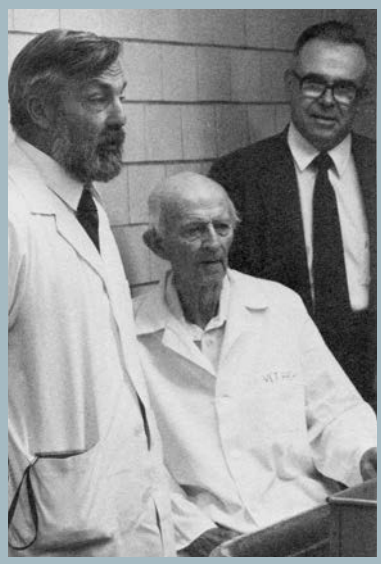
"Dr. King was a legend in Anatomic Pathology," says Clinical Associate Professor of Pathology Dr. Elizabeth Buckles. "A large number of current pathologists were either trained by him or were trained by his trainees, and there are legions of vet students who were inspired by him."

"John was the unrivalled master of observation and perhaps the finest pure pathologist our field has ever known," said longtime friend Dr. Bruce Williams. King was famous for his necropsy "Show and Tell" events, when he would challenge students and faculty to identify diseases by looking at affected tissue. "Even at 5:00 on a Friday afternoon, the risers were always packed and it was standing room only," said Williams.



"DR. KING WAS A LEGEND IN ANATOMIC PATHOLOGY."

—DR. ELIZABETH BUCKLES



K. REDMOND

DR. JOHN KING, PETER OLAFSON (SEATED), AND DR. FRANCIS FOX DURING THE 1984 PATHOLOGY SHORT COURSE.

SNAPSHOTS FROM COMMENCEMENT 2016

GRADUATES TAKE THEIR OATH AT THE COLLEGE OF VETERINARY MEDICINE HOODING CEREMONY.

DEAN LORIN WARNICK HOODS GRADUATES AT THE HOODING CEREMONY.

CONSTRUCTION CONTINUES

THE COLLEGE SAID FAREWELL TO OLD SPACES, INCLUDING THE ATRIUM, THE OLD DIAGNOSTIC LAB BUILDING, AND A LARGE SECTION OF SCHURMAN HALL (SEE BELOW).

GOING,

GOING,

GONE.

THOMPSON NAMED DIRECTOR OF CORNELL UNIVERSITY HOSPITAL FOR ANIMALS

Dr. Meg Thompson, associate clinical professor of imaging at the College, was named director of the Cornell University Hospital for Animals (CUHA) by Dr. Lorin Warnick, the Austin O. Hooey Dean of the College, on May 10.

Thompson had been interim director of CUHA since August 2015, guiding the institution as it continued its leadership role in patient care, veterinary education, clinical investigation and scientific innovation.

"Under Dr. Thompson's interim leadership, we have continued to move forward on strategic evaluation of hospital facility needs, assessment of information technologies to facilitate hospital missions, and evaluation of hospital staffing needs," said Warnick. "Her administrative experience, understanding of hospital operations, and extensive work with regional veterinarians put her in an excellent position to take on the director role."

A member of the Cornell faculty since 2006, Thompson earned her DVM degree from the Tufts University School of Veterinary Medicine and completed her clinical training at Angell Memorial Animal Hospital and the University of Florida. She is a diplomate of the American College of Veterinary Radiology.

"HER ADMINISTRATIVE EXPERIENCE, UNDERSTANDING OF HOSPITAL OPERATIONS, AND EXTENSIVE WORK WITH REGIONAL VETERINARIANS PUT HER IN AN EXCELLENT POSITION TO TAKE ON THE DIRECTOR ROLE."

—DEAN LORIN WARNICK

EMBARK LAUNCHES DOG DNA BREED AND HEALTH TEST

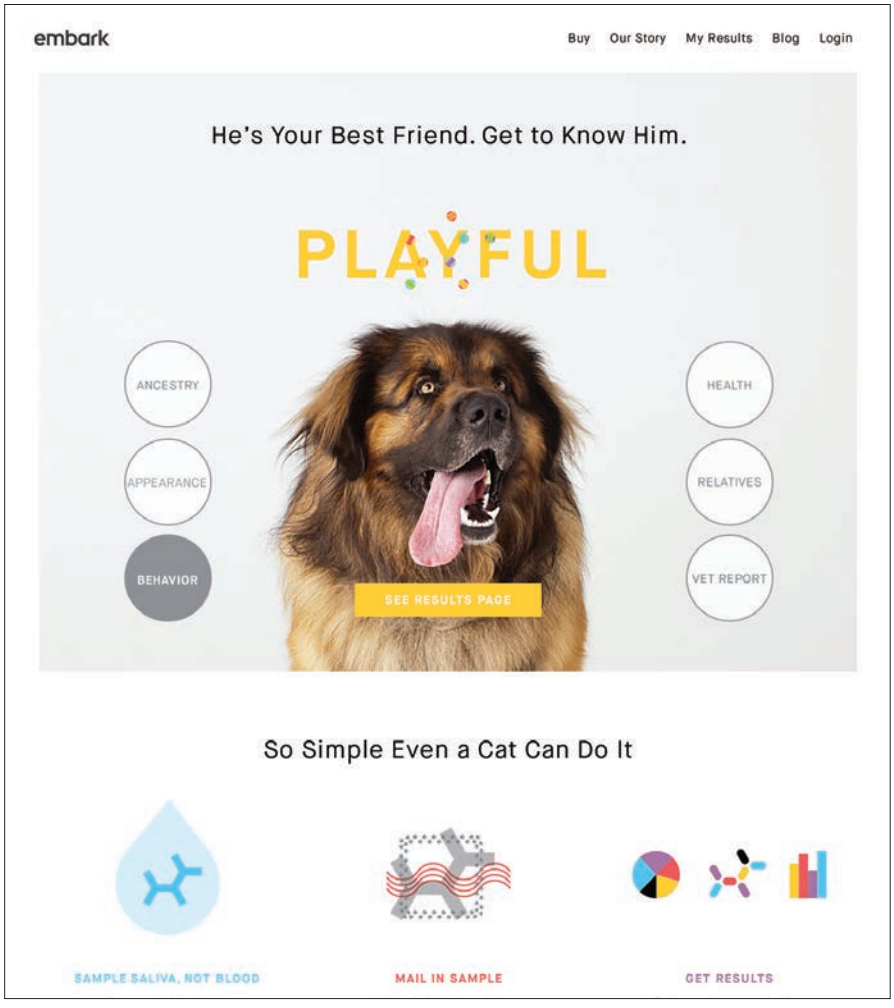
Embark Veterinary Inc., in partnership with the Cornell University College of Veterinary Medicine, launched a new comprehensive dog DNA test to improve canine health and wellness. The Embark Dog DNA Test tracks over 200,000 genetic markers, offering ancestry analysis as well as key insights into genetic disease risk and heritable traits. Founded in July 2015, Embark has since raised over $1.8 million in seed-round investment. The company's CEO Ryan Boyko and Chief Science Officer, Dr. Adam Boyko, assistant professor of biomedical sciences, discussed the Embark technology on the Today Show on May 30.

"Hundreds of thousands of dogs are tested every year for single issues, but not on scientific-grade chips. With scientific-grade chips, not only can owners get a more complete picture of their dog's unique genetic make-up, but we can make real scientific advances that improve our understanding of dog genetics to get to healthier and happier dogs," said Adam Boyko. "It's a huge research opportunity, and we want to facilitate and lead this effort to advance our understanding of conditions like cancer, immune disorders, cardiac disease, hip dysplasia, and aging."

"IT'S A HUGE RESEARCH OPPORTUNITY, AND WE WANT TO FACILITATE AND LEAD THIS EFFORT TO ADVANCE OUR UNDERSTANDING OF CONDITIONS LIKE CANCER, IMMUNE DISORDERS, CARDIAC DISEASE, HIP DYSPLASIA, AND AGING."

—DR. ADAM BOYKO

DR. ADAM BOYKO, CHIEF SCIENCE OFFICER OF EMBARK



A SCREEN SHOT OF EMBARK'S WEBSITE

RECOGNIZING EXCELLENCE

Three College faculty and one staff member have received the 2015–2016 State University of New York (SUNY) Chancellor's Awards for Excellence. These are honors conferred to provide recognition for consistently superior professional achievement and to encourage the ongoing pursuit of excellence.

WAYNE DAVENPORT, director of facilities, has won the Award for Excellence in Professional Service, which recognizes "individuals who have repeatedly sought improvement of themselves, their campuses and ultimately the State University and, in doing so, have transcended the normal definitions of excellence."

DR. MARGARET McENTEE '86, Alexander deLahunta Chair of Clinical Sciences and professor of oncology was given the Award for Excellence in Faculty Service "in recognition of outstanding and sustained service and significant contribution to institutional quality."

DR. JOHN SCHIMENTI, professor of genetics and director of the center for vertebrate genomics, has received the Award for Excellence in Scholarship and Creative Activities, which recognizes his "outstanding scholarship, creative productivity, and significant contribution to institutional quality."

DR. JOHN HERMANSON, associate professor of biomedical sciences, has earned the Award for Excellence in Teaching "in recognition of exemplary teaching and significant contribution to institutional quality in instruction."

TENNANT RECEIVES HIGHEST SCIENTIFIC HONOR FROM HEPATITIS B FOUNDATION

Dr. Bud Tennant, Emeritus James Law Professor of Comparative Medicine, has been awarded the 2016 Baruch S. Blumberg Prize by the Hepatitis B Foundation. Tennant was unanimously selected for the prize in honor of his pioneering work with hepatitis B infection in woodchucks, the first and only animal model successfully used to definitively identify potential and approved therapeutics for hepatitis B.

"Humanity owes a tremendous debt to Dr. Tennant for his pioneering work in hepatitis research, which has been among the most important in the field," said Dr. Timothy Block, president of the Hepatitis B Foundation and its research arm, the Baruch S. Blumberg Institute. "We are proud to present him with the highest scientific honor that we confer, and thank him for his years of dedicated research which has made it possible for us to envision a world without hepatitis B."

The Hepatitis B Foundation is the nation's leading nonprofit organization solely dedicated to finding a cure for hepatitis B and improving the quality of life for those affected worldwide through research, education and patient advocacy.

"HUMANITY OWES A TREMENDOUS DEBT TO DR. TENNANT FOR HIS PIONEERING WORK IN HEPATITIS RESEARCH, WHICH HAS BEEN AMONG THE MOST IMPORTANT IN THE FIELD."

—DR. TIMOTHY BLOCK

CORNELL STUDENTS TAKE NATIONAL ROLE IN DIVERSITY LEADERSHIP

Two Cornell University College of Veterinary Medicine students have been nominated for national-level positions in the American Veterinary Association (AVMA) that focus on diversity and inclusion. Stephie-Anne Duliepre '19 (pictured right) is now the Diversity Chair as well as Communicating Diversity within Veterinary Medicine Chair within the Integrative Diversity and Communication Committee, and Eva Marie Quijano Carde '18 (pictured above) is now national president of the VOICE (Veterinary Students as One in Culture and Ethnicity) organization, which falls under the organizational umbrella of AVMA.

Both Carde and Duliepre are motivated to make the most of their new responsibilities. "It is inspiring to see how the veterinary profession is making a real effort to increase diversity in the field," says Carde. "It is the students' duty to create the atmosphere of cultural awareness, appreciation and inclusiveness that would improve the doctor-doctor and doctor-client relationship, as well as patient care in general. It's something I'm very passionate about, so I'm really happy and excited to participate in such mission as the new national president for VOICE and will work hard to make this profession welcoming to everyone."

Duliepre is also passionate about increasing the inclusivity of the veterinary profession.

"The words we speak, or action we take, whether good or bad, have reactions that will have effects far beyond ourselves. Before all religious, racial, cultural, social, economic, sexual, and gender, differences, we are human beings with a moral obligation to help each other through kindness," she says. "I am honored to take on this new role, and to have the opportunity to help us continue to foster a stronger drive toward inclusion and diversity in our profession."

COLLEGE RECOGNIZED FOR LGTBQ+ EFFORTS

The College of Veterinary Medicine has been formally recognized as a role model in supporting and promoting LGBTQ+ initiatives and advocacy within the Cornell University community. At the 19th annual Lavender Graduation this May, the College received the University Department Award for being the most supportive of the LGBTQ+ community within the past academic year.

"The University Department Award recognizes and honors the facility, office, or department that has and continues to challenge our community to grow and thrive regarding LGBTQ issues at Cornell," says Brian Patchcoski, associate dean of students and director of the LGBT Resource Center at Cornell. "Through this award, we recognize and honor a department's actions, words, and initiatives promoting a more inclusive campus climate during the most recent academic year." Winners of these awards are chosen based off a community-nomination process.

During this past year, the College partnered with Patchcoski to develop a LGTBQ seminar series, which included 'Safer People, Safer Places', which covered sexuality, homophobia, heterosexism, and ways to create an inclusive space; and 'Trans 101', which explored issues and processes faced by trans individuals.

"I was honored to accept this award on behalf of CVM," says Mary Beth Jordan, director of human resources at the College. "I'm also grateful for our close partnership with Brian over the past 14 months to develop our series of diversity dialogues. He was an outstanding presenter, and because of his expertise, we were able to create meaningful seminars that truly enhanced understanding and awareness within our community."

"THROUGH THIS AWARD, WE RECOGNIZE AND HONOR A DEPARTMENT'S ACTIONS, WORDS, AND INITIATIVES PROMOTING A MORE INCLUSIVE CAMPUS CLIMATE . . ."

—BRIAN PATCHCOSKI

CORNELL LGBT RESOURCE CENTER

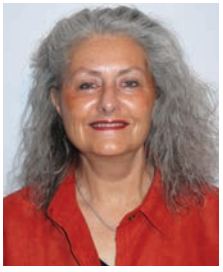
LIN WINS FACULTY AWARD

Dr. Dave Lin, associate professor of neurobiology, won the Cornell University Graduate and Professional Student Assembly (GPSA) Faculty award. This honor, which is designated to "acknowledge and express gratitude for the many excellent faculty mentors at Cornell University," is typically awarded to faculty members who serve as inspiring role models, are champion of graduate and professional student interests, and go above and beyond in their commitment to furthering their students' personal and professional success.

Out of 130 letters for 40 nominated faculty members, the GPSA selected three awardees, including Lin. "With so many nominations of faculty members who exemplify excellence in the mentoring of graduate and professional students, the awards committee faced an extremely challenging, yet exciting, decision," the GPSA said in a press release.

"I was happy to be nominated by the students, and am very honored to have been selected," says Lin of the recognition. "I really enjoy working with new students, and helping them to kick-start their graduate career. Our students are very strong, and I find I usually only have to point them in the right direction to get them going."

DR. SHARON CENTER WINS 2016 ACVIM ROBERT W. KIRK AWARD FOR PROFESSIONAL EXCELLENCE



Dr. Sharon Center, James Law Professor of Internal Medicine, received the ACVIM Robert W. Kirk Award for Professional Excellence at the 2016 American College of Veterinary Internal Medicine (ACVIM) Forum. This award is presented annually to an ACVIM Diplomate with an outstanding career in veterinary medicine including national and international recognition for contributions and service in activities such as clinical medical practice, instruction, research and/or public service. Center is known as a remarkably skilled clinician and brilliant researcher, making significant scientific contributions to the field of small animal hepatology in the past three decades. She was recognized as the Outstanding Woman Veterinarian of 2012 by the Association for Women Veterinarians Foundation, was awarded the Norden-Pzifer Distinguished Teaching Award, and her clinical and research studies have been documented in more than 100 peer-reviewed publications, 50 scientific abstracts and 50 book chapters.

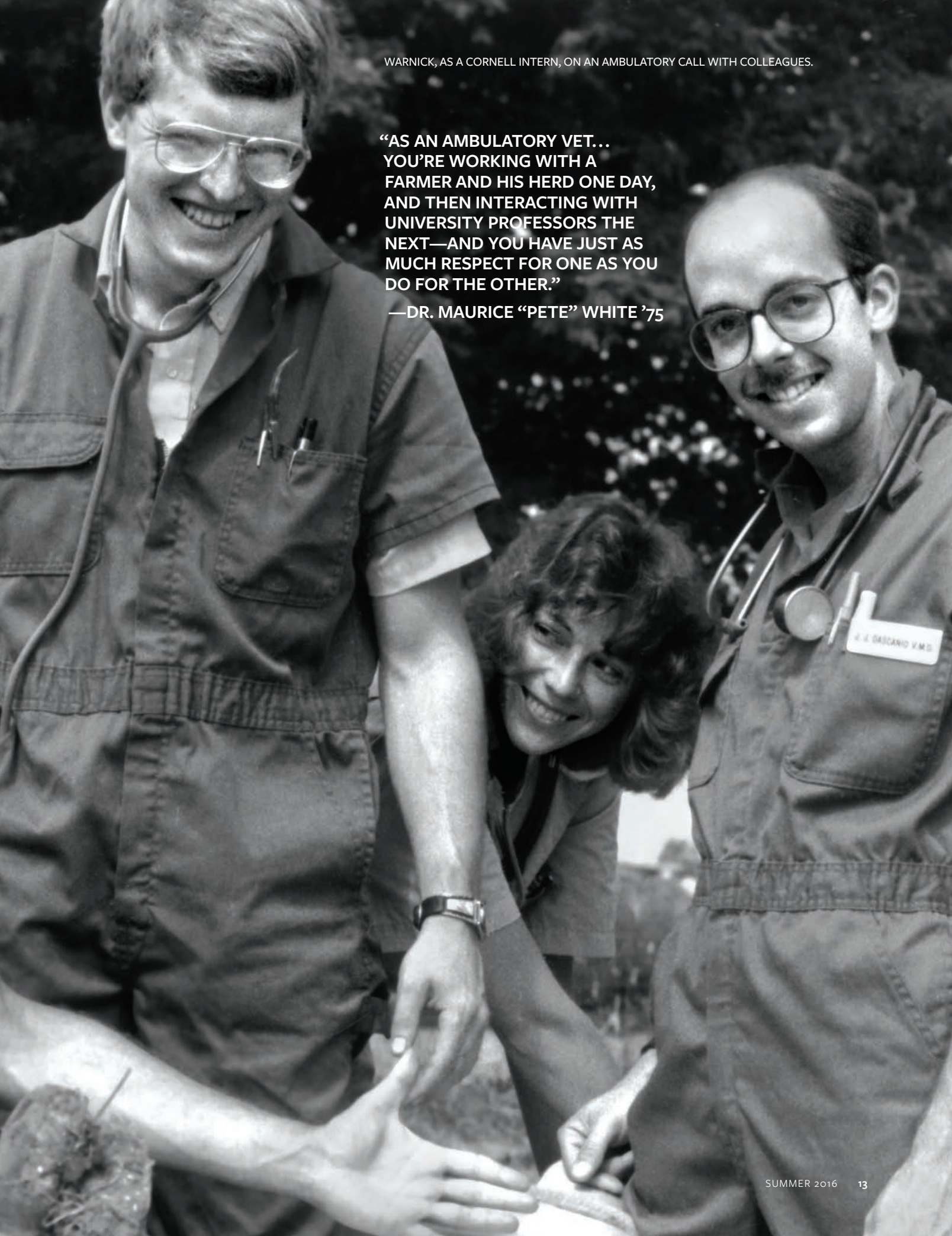
DEAN LORIN WARNICK:

CONTINUING THE JAMES LAW LEGACY

By Lauren Cahoon Roberts

If you walk the College grounds with Dean Lorin Warnick, you won't get far without him greeting someone. He'll stop to ask a passing student about her summer plans, chat about cattle husbandry with the dairy barn supervisor, or introduce you to an old colleague from the ambulatory service. It's not surprising that Warnick knows people from all parts of the College—he first arrived here in 1988 as an intern and since then has had a variety of roles. But it also speaks to something else about the man who was recently named the eleventh dean of the Cornell University College of Veterinary Medicine; he can relate to just about anyone.

According to Dr. Maurice "Pete" White '75, professor emeritus with the Department of Population Medicine and Diagnostic Sciences, you shouldn't expect anything less from a former ambulatory and production medicine veterinarian—a specialty that requires large-animal clinicians to travel to farms where they treat animals on-site. "As an ambulatory vet, you have to be able to deal with all kinds of people, often in stressful situations, in their home environment," says White, who worked with Warnick on Cornell's ambulatory service for years. "You're working with a farmer and his herd one day, and then interacting with university professors the next—and you have just as much respect for one as you do for the other."



WARNICK, AS A CORNELL INTERN, ON AN AMBULATORY CALL WITH COLLEAGUES.

"AS AN AMBULATORY VET… YOU'RE WORKING WITH A FARMER AND HIS HERD ONE DAY, AND THEN INTERACTING WITH UNIVERSITY PROFESSORS THE NEXT—AND YOU HAVE JUST AS MUCH RESPECT FOR ONE AS YOU DO FOR THE OTHER."

—DR. MAURICE "PETE" WHITE '75

A YOUNG WARNICK STANDS WITH ONE OF HIS FAMILY'S HOLSTEIN CALVES IN 1965.

"IN THOSE DAYS, WHEN YOU'RE FIVE, YOU'D BE DRIVING THE TRACTOR."

—DEAN LORIN WARNICK

This 'ambulatory attitude' that now sets the tone in the dean's suite and throughout the College is one that links back all the way to the institution's founding father: James Law himself was the first dean who practiced ambulatory medicine (although it wouldn't be called that formally for many years to come)—and up until this May, he had been the only dean to do so. Now, Warnick carries on the tradition into the next era of the College.

SMALL TOWN, BIG AMBITIONS

Warnick was raised on a dairy farm on the high plains of Montana, a few miles from the small town of Fort Shaw (for perspective: last Census population count was 280 in 2010; Warnick's high school class was made up of 68 students). His parents, and both sets of his grandparents were dairy farmers. The youngest of seven, he and his siblings all helped with chores. "In those days, when you're five, you'd be driving the tractor to pick up hay," Warnick recalls. "I know that sort of thing would be considered dangerous by today's standards, but I thought it was fantastic at the time."

His chores included lots of animal husbandry: raising rabbits, caring for calves and the family's registered Quarter Horses. By the time he was twelve, he was helping treat sick animals on the farm and assisting the family veterinarian, who inspired the young Warnick: "Here was someone who showed up and had a lot of special skill and knowledge—I found it interesting," he says. (And, although it treads on clichéd territory, Warnick admits he also read the James Herriot stories, another formative influence on his young ambitions.)

Warnick's burgeoning interest in veterinary medicine was both encouraged and discouraged by local practitioners—one cautioned him against the career. "He told me 'don't do it—it's hard work, you'll have too much debt.'" Warnick says. Another veterinarian, Dr. John Peebles, allowed Warnick to ride on farm calls during high school and get a first-hand look at the rewards and challenges in the life of an ambulatory clinician. Despite mixed advice, Warnick stuck with his plans to study veterinary medicine "quite stubbornly."

With his eye always fixed on the veterinary profession, Warnick started his academic studies at Brigham Young University as an undergraduate in microbiology. When he began his search for veterinary schools, Warnick received a practical piece of advice during his interview with a Purdue University College of Veterinary Medicine faculty member at the time, Dr. Billy Hooper (also the first executive director of the Association of American Veterinary Medical Colleges). "He said that the decisive thing in figuring out where to go should be the animal population around the school, because that drives the faculty interests, and the kind of research and clinical work you'll end up having access to," says Warnick. "I thought that was really good advice." Thus, Warnick selected Colorado State University, which had a robust large animal population in the region, as well as lots of small animal referrals from the Denver area.

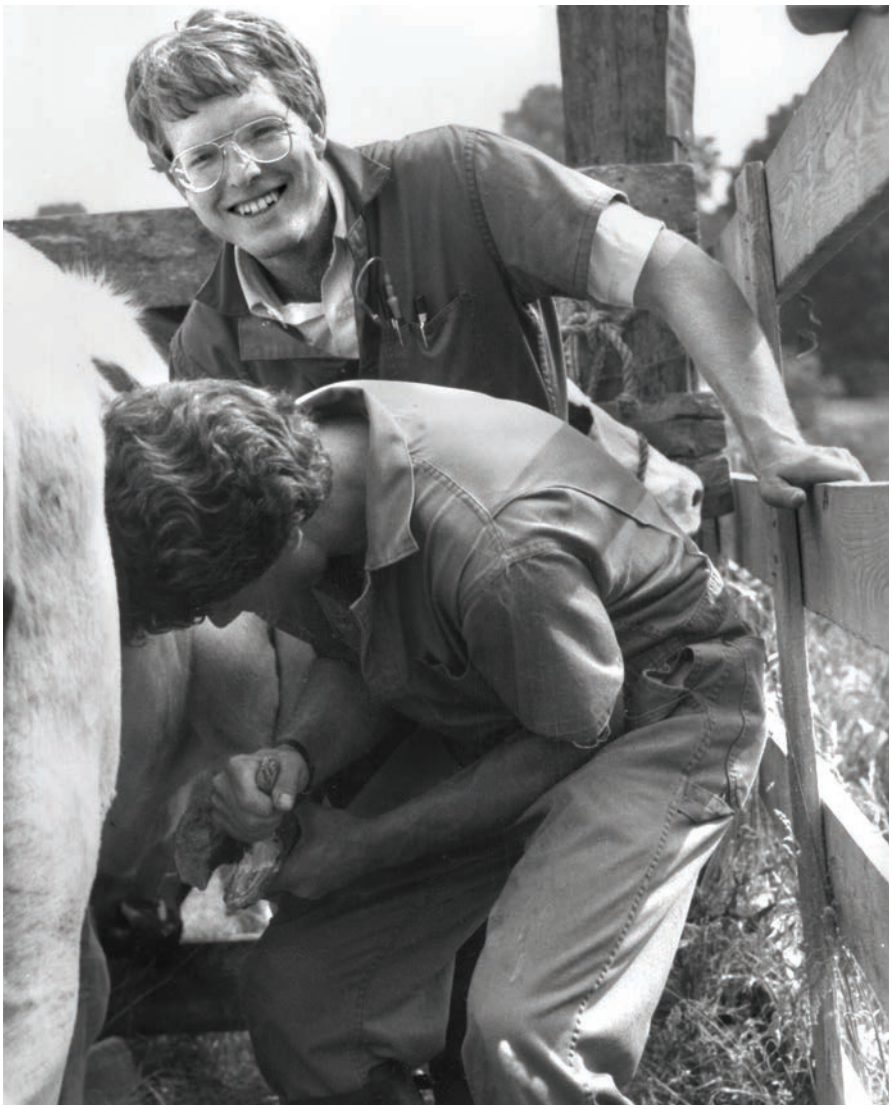
As a veterinary student with an affinity for math, Warnick's favorite subject was epidemiology, which was taught by internationally-recognized epidemiologists including Dr. Mo Salman and Dr. John Reif. Warnick intended to get a doctorate in the topic, but knew he needed more clinical experience—thus, he applied to veterinary internship and residency programs around the country. When he was matched with Cornell's program, Warnick and his family made the big move out East. A true Westerner at heart, Warnick jokes that the transition is "a shock I'm still recovering from."

AMBULATORY ATTRIBUTES

Upon moving to the East Coast, Warnick would complete his internship, residency, and PhD at Cornell, leave for a faculty position at the Virginia-Maryland Regional College of Veterinary Medicine, and then return to Cornell as an assistant professor. White, chair of the Department of Clinical Sciences at the time, helped hire Warnick. When asked why he enjoyed working with Warnick, he lists practical qualities, such as his excellence as a clinician and researcher, but notes strong personal qualities as well. "He's thoughtful. He can disagree without being disagreeable," White muses.

For Warnick, Cornell's ambulatory service represented a satisfying combination of clinical service, scholarship, and research. "We have one of the most successful ambulatory clinics in that way," he says. "It brought us into daily contact with the practical problems in the world, and we'd then try to address those issues through scientific inquiry. It keeps work life interesting."

Interesting indeed. Warnick's time on the ambulatory service was full of moments that mixed both science and service—Warnick recalls chasing down a reluctant 600-pound pig in need of having its tusks trimmed—while simultaneously fielding a phone call from a colleague about statistical modeling approaches for a grant application. Another time, it was White who took the call for that same pig, and, forgoing more sophisticated pharmaceuticals, the owner and White decided to offer a case of beer to make the animal less cantankerous. "When he got out there, the pig was inebriated, and the owner had saved one can for other purposes," Warnick recalls with a laugh.

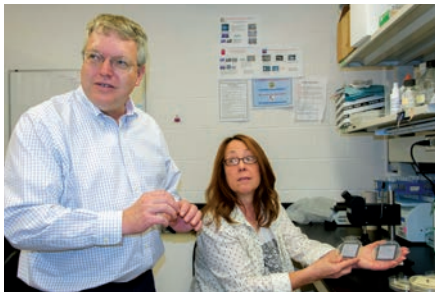


WARNICK ON CALL DURING HIS TIME AS AN AMBULATORY INTERN.

WARNICK POSES AT HIS DVM GRADUATION AT COLORADO STATE UNIVERSITY

"IT BROUGHT US INTO DAILY CONTACT WITH THE PRACTICAL PROBLEMS IN THE WORLD, AND WE'D THEN TRY TO ADDRESS THOSE ISSUES THROUGH SCIENTIFIC INQUIRY. IT KEEPS WORK LIFE INTERESTING."

—DEAN LORIN WARNICK



SALMONELLA SCIENCE

Finding scientific solutions to clinical issues he's dealt with has been Warnick's research calling; while he was on the faculty for large animal clinical sciences at Virginia-Maryland Regional College of Veterinary Medicine, there were many outbreaks of salmonellosis in dairy herds in the state. The disease can cause dehydration and death in cattle, with serious economic impacts for dairy farmers. Warnick conducted field epidemiology experiments and identified risk factors for the disease. At Cornell, he and his graduate student at the time, Dr. Kwankate Kanistanon, received a USDA grant to examine the emergence of antimicrobial resistance in *Salmonella*.

Warnick has also studied how, and if, *Salmonella* is transferred from cattle to people. Through a partnership with Dr. Martin Wiedmann in the Department of Food Science at Cornell, they determined that *Salmonella* found in humans that was initially attributed as coming from cattle, in fact came from other sources. Today, Warnick shoulders many additional responsibilities—but he remains active in research, publishing papers and continuing his investigation of *Salmonella* epidemiology and antimicrobial resistance in enteric bacteria. His most recent studies showed the selection of resistance following exposure to very low concentrations of antibiotics in milk, typical of what would occur when feeding waste milk to calves. Warnick notes how grateful for and proud he is of his PhD students who worked on these projects, beginning with Dr. Kanistanon and more recently Kim (Ray) Alexander, Kevin Cummings and Richard Pereira.

LISTENING AND LEARNING

Warnick stepped into an administrative role when he became associate dean for veterinary education in 2007. At that time, there was feedback from graduates, employers, and faculty that students needed better small animal primary care experience—the kind of cases seen most often in practice. In response, Warnick spearheaded the expansion of primary care training for students working with Dr. William Hornbuckle's Community Practice Service (CPS) which is now staffed by Dr. Brian Collins '94 and Dr. Leni Kaplan, and offers primary care to dogs and cats at the Cornell University Hospital for Animals (CUHA).

Additionally, Warnick conceived of partnering with Shelter Outreach Services (SOS), a local non-profit spay and neuter program for stray, rescue, or in-need animals led by Dr. Leslie Appel '94. Thanks to this collaboration, every CPS rotation includes a day with SOS where the student sterilizes at least five cats from shelters served by the program under the supervision of an experienced faculty member. "This is a win-win-win situation," says Appel. "The students, faculty and SOS team all give this program the highest evaluations. The students especially really love participating and this program is truly enhancing their surgical education as well as their animal welfare knowledge base. This entire teaching program is thanks to the idea and then the dedication of Dr. Warnick."

Warnick looks back at these effort with satisfaction: "The single thing I feel best about from my experience as associate dean, was being able to respond to student input, and do something significant and new," he says. "And then to hear positive feedback about those changes."

Honing in on the student experience is something Warnick has done since his days in the ambulatory service—farm calls provided an excellent chance to get to know students. "That was always one of the best parts of the experience," Warnick recalls. For hundreds of hours, with hundreds of students, Warnick drove the ambulatory service vehicle along the backroads between Cayuga and Seneca Lakes, quizzing them on topics related to the cases they'd just seen. There was also plenty of time for students to chat about career aspirations, experiences with curriculum, views of the College, and of the profession in general. "Eventually, the students would forget I was there, and that's when the conversations got very free-flowing," Warnick says with a laugh. "I heard what was really going on at the vet school, their personal ups and

downs—it was very valuable insight to student life."

In his role as dean, Warnick has continued to listen closely to what students are saying. "He is refreshingly open to listening to students' new ideas or concerns," says Stephie-Anne Duliepre '19, a member of the Cornell Student Chapter of the American Veterinary Medical Association. "Without fail, he takes a moment to sit down or stop everything to listen to what I have to say. I didn't expect that at all from the dean of the College, but it's really left me with a sense that the administration, all the way up to the dean, is truly there for us as students."

FROM THE 'HARDEST JOB AT THE COLLEGE' TO THE HIGHEST

In 2012, Warnick became director of CUHA. The position requires the oversight of both the large animal and companion animal hospitals, balancing both teaching and clinical missions while ensuring all hospital operations run smoothly—"the hardest job at the College," according to White. Warnick was up for the challenge, earning the respect of his colleagues, including that of Dr. Margaret McEntee '86, Alexander deLahunta Chair of Clinical Sciences. "The relationship between my department and hospital was strengthened during his tenure as hospital director for the benefit of all," she says.

Indeed, his efforts at CUHA, along with his track record of success as associate dean of veterinary education, made Warnick an obvious choice for interim dean when Dr. Mike Kotlikoff left to serve as Cornell provost. "Lorin is incredibly thoughtful and fair," says Kotlikoff. "At the same time, he thinks strategically and is able to lead people toward an appropriate outcome. He can be very persistent in making sure that the best path is followed." The respect is mutual; "Provost Kotlikoff has given me great opportunities and guidance in my work in academic administration," says Warnick.

Warnick's eventual appointment as the Austin O. Hooey Dean of Veterinary Medicine was not a surprise to those who know him well. "Lorin brings to the position the perspective of a teacher, clinician, researcher, faculty member and seasoned administrator and is able to bring all of this to bear in his approach to leadership and guiding the College," says McEntee. "You can always count on the fact that he will have been very thoughtful in his decision-making. He is a positive force at the College. He is able to maintain calm even in the face of turmoil; working through issues and serving as a role model for all of us."

"I know our College will be in great hands," says Appel. "His great ethics and professionalism will be an asset. Dr. Warnick is also approachable and kind, and genuinely cares about the College as a whole, the individual students and faculty and staff, and our patients and profession."

As dean, Warnick is really rolling up his sleeves; there are plans for updating curriculum and renewing faculty, of building the CPS clinic, increasing diversity at the College and bolstering business acumen and confidence in students. It's this kind of practical problem-solving that he's done since his early days as a clinician-scientist on the ambulatory service, and what most motivates him as dean. "To observe the status quo, and having the challenge of figuring out new ways to approach it, and make it better—that's what excites me most," he says. "The world is dramatically changing in a number of ways that will impact the College, and I look forward to responding to those challenges."

"LORIN BRINGS TO THE POSITION THE PERSPECTIVE OF A TEACHER, CLINICIAN, RESEARCHER, FACULTY MEMBER AND SEASONED ADMINISTRATOR AND IS ABLE TO BRING ALL OF THIS TO BEAR IN HIS APPROACH TO LEADERSHIP AND GUIDING THE COLLEGE."

— DR. MARGARET McENTEE

DISCUSSIONS ON DIVERSITY: Q&A WITH DARLINE GARIBAY

Darline Garibay, a Mexican-American graduate student with the Biological and Biomedical Sciences Program (BBS), works actively with administration to help boost diversity and inclusion of Under-Represented Minorities (URMs) at the College. We spoke with her about her involvement, the BBS program's efforts and the state of diversity at our institution.

DARLINE GARIBAY

Q: How has Cornell's Biological and Biomedical Sciences (BBS) program made efforts to increase student diversity, and how have you been involved in that effort?

Cornell's BBS program is always looking for new ways to increase student diversity. The program's efforts include outreach to under-represented minority (URM) students who have shown interest in our university at various national conferences. This year, I attended the SACNAS (Society for Advancing Chicanos/Hispanics & Native Americans in Science) national conference in October, and tabled at our Cornell graduate school booth. I helped answer questions, and provided information on all of Cornell's graduate programs. In addition, I also participate in the BBS interview/recruitment events for prospective students, where I also answer questions, and share my experiences as a PhD student.

Q: When doing outreach for Cornell and talking to other URM candidate students, what kind of concerns and questions do they have for you?

The questions are very broad. I was at a recruitment event at SACNAS in October, and the top questions involved the weather in Ithaca, and students genuinely interested in what I thought about the program. They want to know what life will be like in Ithaca, ranging from social events to school expectations. I was able to connect with these students on a deeper level, because many of them, like myself, are first-generation college students. Being first generation college students, for the most part, we do not have parental help when applying for college, and are navigating the graduate school application process on our own. The most important thing when talking to them is giving them honest feedback—"I really do love my program, and here is why . . ." Also, by answering their questions, and listening to their concerns, I encouraged them to apply, as I was once in their shoes.

Q: The BBS program has a relatively high percentage of URM students, and applicants—why?

I believe we attract some of the best candidates in the nation because our program is recognized as being one of the best. I think our personalized approach to education, community, current students, and faculty are the reason we have a high percentage of URM students and applicants. When I first came for my interview/recruitment event, since day one, I really felt like I was wanted here. Students/faculty let me see that if I chose to come here, I would have all of the support I needed. As a second year, I can tell you that their promise has definitely been true. My director of graduate studies, Dr. Dave Lin, was constantly checking in with my fellow peers and me during our first year to ensure that everything was going well, and that role has now been passed to my mentor Dr. Bethany Cummings.

Q: What was pivotal for you when you decided to attend Cornell's BBS program?

I chose BBS because it offered a personalized program that would make me a well-rounded scientist. Some of the highlights include: personalized course work, rotating through three labs, flexibility in choosing a lab, and committee members from across campus. The informative faculty and students I met at my interview/recruitment event further convinced me this was the best place for me.

"I THINK OUR PERSONALIZED APPROACH TO EDUCATION, COMMUNITY, CURRENT STUDENTS, AND FACULTY ARE THE REASON WE HAVE A HIGH PERCENTAGE OF URM STUDENTS AND APPLICANTS. WHEN I FIRST CAME FOR MY INTERVIEW/ RECRUITMENT EVENT, SINCE DAY ONE, I REALLY FELT LIKE I WAS WANTED HERE."

—DARLINE GARIBAY

CORNELL BBS STUDENTS PARTICIPATE IN A TEAM-BUILDING ROPES COURSE DURING ORIENTATION.

DR. JAMIE MORRISEY '92

ONE VET: MANY HATS

By Lauren Cahoon Roberts

IT CAN BE A LITTLE DIFFICULT TO PIN DOWN DR. JAMES MORRISEY.

Can't find him? Check his clinic in the Cornell Hospital for Animals' exotics service—you may catch him treating a kinkajou or cuddling with Felicia, the resident cockatoo. No luck there? Get a ticket to the annual Vet Players performance, and you'll likely see the silver-haired section chief of exotics singing or dancing alongside the students. If it's summertime, you might catch him bantering with the new interns as he leads them on orientation around the hospital. Then again, perhaps you'll bump into him on his way to a Homophiliacs (the Cornell student subset of the Lesbian & Gay Veterinary Medical Association) or the Zoo and Wildlife Society club meeting. Yes, the man is busy—but, he's not about to slow down. "I'm a people person," says Morrisey. "I'm energized and motivated to get to know people both personally and professionally. It makes my job a lot more fun."

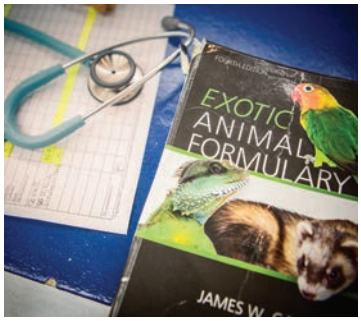
FROM BIG RED TO THE BIG APPLE—AND BACK AGAIN

Morrisey began his veterinary training where he works now—at the College, focusing on exotic and wildlife medicine. After an internship at Kansas State University in zoo, wildlife and exotics animal medicine, he would later go on to become chief of the exotics services at the Animal Medical Center (AMC) in Manhattan. He was there in 2001 for the 9/11 terrorist attacks on the World Trade Center—a day he'll never forget. "The whole city shut down," he recalls. "People were coming out of the subway just covered in ash." Rather than run to safety, he and his veterinarian colleagues donned their white coats and walked to Ground Zero to put their clinical skills to use—flushing victims' eyes and checking on client's animals in the area. It was shortly after that harrowing experience that Morrisey left the city to take a job back at Cornell, where he's now put down roots and built programs from the ground up.

AN INNOVATIVE INSTRUCTOR

Teaching is an integral part of Morrisey's role at the College, and he likes it that way. In fact, it's what originally lured him away from his job as a Manhattan exotics clinician. "When I was at AMC, I found that I really loved, and missed teaching, and I wanted to do more of it," says Morrisey. Thus, when he returned for a faculty position at Cornell in 2003, Morrisey jumped immediately into building the CVM Clinical Communication Skills curriculum. The course, which spans all four years of the DVM program, teaches students how to communicate one-on-one, within teams, and with clients. The final semester of the program gives students the chance build their communication skills through live interactions with simulated patients (the ever-useful RoboJerry—see page 28) and actors posing as pet owners. "This course is essentially the most-used skill you will ever use in veterinary medicine, above all the diagnostics and medicine that they teach us in school," says Anastasia Handwerk '17.

"I FOUND THAT I REALLY LOVED, AND MISSED TEACHING, AND I WANTED TO DO MORE OF IT."



According to his students, Morrisey is the perfect person to teach the course. "He's really engaging—he easily fosters an environment of communication and interplay between him and the class," says Jesse Navatta '17. "I've seen him work with clients, and he enables them to open up in a way many veterinarians aren't able to."

Additionally, Morrisey teaches courses in exotics, core curricula in Block 5 and Block 7, as well as distribution courses in avian and reptile medicine, and field techniques in international wildlife.

ESTABLISHING EXOTICS

Morrisey is also the responsible for creating a full-time, in-patient exotics service at Cornell University Hospital for Animal (CUHA). Prior to his arrival, the service at Cornell was only part time because the veterinarians split their time at the Rosamund Gifford Zoo in Syracuse and the the Janet L. Swanson Wildlife Health Center. When Morrisey returned to Cornell as a faculty member, he began to build the service up, recruiting other clinicians, interns, residents, and technicians to treat patients brought to CUHA.

Navatta worked in Morrisey's clinic as an licensed veterinary technician, and now as a DVM student. "He keeps the working atmosphere fun and light," says Navatta. "But I've been with him in emergency situations, and it's pretty amazing to see him switch from the goofball to the person who's going to save this bird."

Today, the service treats roughly 1800 cases a year, seeing a wide variety of species, from cockatiels to kangaroos. While his patients of many shapes and sizes come and go, one animal stays constant—Felicia, an umbrella cockatoo that Morrisey adopted when her owner had to relinquish her for health reasons. The charismatic bird has become something of a celebrity at the College—she appears in numerous photos in CVM materials, and has starred along with Morrisey in a Cornell Giving Day livestream video.

Between semesters, Morrisey often travels abroad to do clinical work in other countries. During winter breaks, he has travelled to Honduras to teach a course in field techniques; and, during many a summer break, he's gone to Bolivia to volunteer his skills at a wildlife rescue center, treating big cats such as jaguars, pumas and ocelots—work that he says is possibly the most rewarding of all.

A MAN OF THE ARTS

Morrisey's enthusiasm doesn't end at the clinic and the classroom—he's also widely known for his love of performing arts. As an undergrad at the University of Maryland, Morrisey majored in both dance and zoology. As a veterinary student, Morrisey danced with the Cornell dance department, and also helped found the first and only active theater company based within a veterinary college, the Cornell Veterinary Players. The first production was *Little Shop of Horrors*, and Morrisey played the voice of Audrey the plant—"it's a part I inherited on opening night," he recalls. The original actor had a medical emergency and Morrisey stepped in. "I was back stage with a microphone, reading off the script." Nearly 30 years later, the group is still going strong. Morrisey joins in on performances when he can; in the most recent Arts Collective performance, Morrisey delighted the audience with his rendition of "Under the Sea" from *The Little Mermaid*—dressed in a full-body crab costume. And, in the Cornell Veterinary Players' Fall 2015 production of the *Scarlet Pimpernel*, he played the Prince of Whales. "He did the part flawlessly," recalls Handwerk. "The audience loved him and his crazy wig!" It's this kind of involvement that creates a sense of kinship between Morrisey and the student community. "Students feel engaged with him—it's refreshing to witness our mentors treat us as a peer," says Navatta.

His love for the arts keeps Morrisey busy, but balanced. "I think in my profession and my specialty, it helps to have a strongly functioning right brain," he says. "As an exotics veterinarian, you've often got to be thinking outside of the lines." There's no doubt that Morrisey will continue to do just that, no matter which hat he's wearing.

"AS AN EXOTICS VETERINARIAN, YOU'VE OFTEN GOT TO BE THINKING OUTSIDE OF THE LINES."

MORRISEY TREATS (BOTTOM RIGHT) AND BONDS WITH (ABOVE LEFT) PUMAS AT A BOLIVIAN WILDLIFE RESCUE CENTER. ABOVE RIGHT, MORRISEY PERFORMS IN A CORNELL VETERINARY PLAYERS PRODUCTION.

"I'VE BEEN WITH HIM IN EMERGENCY SITUATIONS, AND IT'S PRETTY AMAZING TO SEE HIM SWITCH FROM THE GOOFBALL TO THE PERSON WHO'S GOING TO SAVE THIS BIRD."

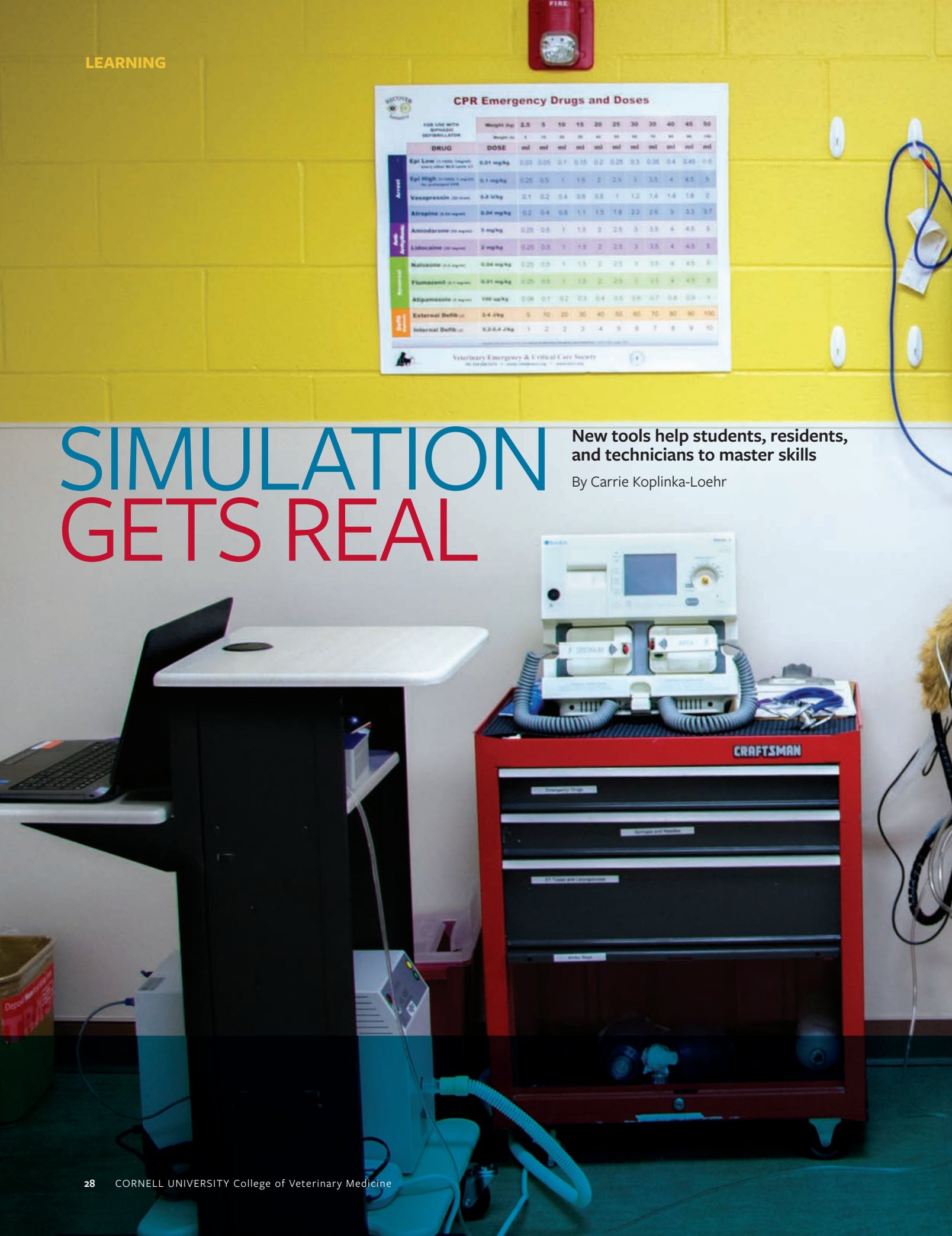
—JESSE NAVATTA '17

FELICIA, A 25-YEAR-OLD UMBRELLA COCKATOO AND MORRISEY

SIMULATION GETS REAL

New tools help students, residents, and technicians to master skills

By Carrie Koplinka-Loehr



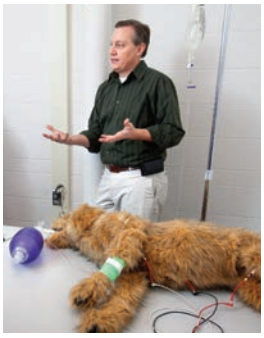
Not every professor in the College gets a note from the custodian asking, "Why is there a dead naked man on your desk?" But Dr. Daniel Fletcher, associate professor of emergency and critical care, can explain. Truly.

"WE KNOW THAT ADULTS LEARN BEST BY EXPLORING, MAKING MISTAKES, GETTING FEEDBACK, AND THEN ADJUSTING. WE DESIGN THESE SIMULATIONS IN THE HOPES THAT PEOPLE MAKE MISTAKES." —DR. DANIEL FLETCHER

You see, the dead man was actually a brand new $27,000 human patient simulator—purchased with funds from a Faculty Innovation in Teaching grant, and Fletcher was taking it apart. What he really wanted was a robotic dog that could be programmed by a computer and hold up under chest compressions, but no company sells such a thing. So Fletcher—who's armed with doctorates in both biomedical engineering and veterinary medicine—created it.

Increasing numbers of clinical faculty in the College are using simulators to strengthen hands-on learning and solve emerging challenges in veterinary medicine. Spurred by the knowledge that students learn better when they make mistakes in a controlled environment, professors are implementing tools that test clinical skills, mimic animal anatomy, or require teamwork.

Some of the simulators at the College are improvements on simple teaching tools, such as fake skin for suturing. Others are high tech and fresh out of the box. Low-fidelity simulation minimally represents real life, whereas high-fidelity simulation looks realistic and can be programmed to respond when touched or treated, providing instant feedback to the user. In the new parlance, that's immersive simulation with a physical simulator.


DR. DANIEL FLETCHER

WHY SIMULATION, AND WHY NOW?

College faculty who use simulation recognize that fourth-year students and even interns and residents are exposed to only a slice of all possible medical scenarios. Furthermore, those clinical experiences don't necessarily lead to proficiency. For example, students in Fletcher's preclinic classes understood how to administer CPR or handle a crisis, but they weren't being asked to try it. Once they entered the clinic, they'd freeze under pressure, or worse, never encounter scenarios where they could practice. When Fletcher looks back on his career, he says he learned the most from his missteps, but sometimes that meant inadvertently harming a patient. "We know that adults learn best by exploring, making mistakes, getting feedback, and then adjusting," says Fletcher. "We design these simulations in the hopes that people make mistakes."

Dr. Carolyn McDaniel, who teaches preclinical foundation courses, says, "One of the great benefits of preclinical education at Cornell is exposure to live animals, but there are practical and welfare limits to how we use our teaching animals." While live animals give students a deep understanding of tissues and organs, caring for those animals is expensive, and anesthetizing them during surgery carries risks. Students also use cadaver tissues, but these are limited and perishable. McDaniel, a senior lecturer, believes simulations provide a perfect complement to students' live-animal work because they need to keep the skills well-honed.

A COLLEGE ALUMNUS TRIES HIS HAND AT THE FUNDAMENTALS OF LAPAROSCOPIC SURGERY SYSTEM DURING A HANDS-ON DEMONSTRATION AT REUNION 2016.

New technology in veterinary medicine, such as laparoscopy, requires new skills. To build those skills, veterinary faculty are using simulators originally designed for training human health practitioners. Dr. Galina Hayes, assistant professor of small animal surgery, is concerned about how little time is devoted to developing new skills. "People are definitely doing a lot of laparoscopic procedures, but residents everywhere are learning on their patients, human as well as veterinary," says Hayes. "Where we can move the learning curve to a simulator, we're ethically bound to do so."

FROM SIMPLE TO HIGH-TECH SIMULATORS

In January Cornell became one of a handful of veterinary schools to own a life-size (and full-weight) equine rescue mannequin. The model enables students in the large animal critical care course to learn to safely extricate a horse stuck in a mud pit, pinned under a fence, or caught in a trailer accident. Explains Dr. Rolfe Radcliffe, lecturer in large animal surgery and emergency and critical care, "The benefit is not having to put a live horse through a rescue experience." Radcliffe believes that simulation won't replace live animal training, but will reduce the number of animals needed, foster a better learning experience, and eventually increase the standard and safety of veterinary care.

McDaniel develops low-fidelity simulations that help students hone fundamental skills in surgery, ophthalmology, and venipuncture. To help students improve their ability to clamp living tissue, she designed a uterine model from a Penrose drain filled with homemade Play-Doh® that mimics the feel and gives them practice with ligation.

"Cheap and easy, that's my model," says McDaniel. "We like students to practice as much as they need and want." They learn to use surgical instruments on a variety of fake flesh models. McDaniel's eyeball model, composed of a clear acrylic marble embedded in a stuffed animal allows students to practice indirect ophthalmoscopy. They succeed once they read the message (such as "Congratulations!") on a piece of paper at the back of the eye. "It's great fun," says McDaniel, "and students gain confidence and are much better prepared."

Her low-fidelity venipuncture model consists of intravenous line tubing embedded in a cushy vet wrap material. "We needed to mimic the feel of a blood vessel," she says, emphasizing the educational goal rather than the realism. The College also owns models of small dogs with simulated vessels so students can collect "blood" (water with food coloring) from the cephalic vein.

DR. CAROLYN McDANIEL SPEAKS TO A GROUP OF FIRST YEAR DVM STUDENTS.

INSIDE ROBOJERRY

In a basement lab that Hayes oversees, a monitor perches above a box of pegs that looks like a game. It's connected to a computer running the FLS system—Fundamentals of Laparoscopic Surgery—a set of teaching modules that enables hands-on practice. Residents must master five tasks designed to build laparoscopic surgery skills: transferring rubber triangles from one peg to another, precision cutting, ligating loop (used in tying off vessels), stitching outside the body, and stitching inside. Students are timed and can keep practicing until their scores fall below the target, for example, 48 seconds for the peg transfer.

It's not easy determining depth on a flat screen, and students typically score 3-5 minutes on their first task. "You extrapolate that to the actual procedure," says Hayes, "and a procedure that should take you 20 minutes if you're skilled is taking you three and a half hours." Ensuing risks include peri-operative hypothermia, infection, and increased trauma. According to Hayes, current veterinary literature reports times for laparoscopic procedures that are consistently double or triple what they could be with sufficient simulator training. In contrast, research in human medicine is proving that people who master FLS are safer, faster surgeons with real patients than they are when they learn on the job. That competency is precisely what Hayes hopes to accomplish with her residents.

Dr. Robert Goggs, an emergency and critical care specialist, has similar goals with a new simulator called the Advanced Servo Lung (ASL). Although not much more than a grey box on the outside, the ASL 5000 can simulate any kind of breath or lung pathology, including upper and lower airway disease. The sophistication lies in the software, which enables an infinite number of different scenarios to be generated and adapted to learners. The ASL 5000 can be connected to a mechanical ventilator to train veterinarians to provide support for animals with respiratory failure. Says Goggs, "this simulator enables us to train our residents to the standard we would like without using real patients."

Trainees like resident Francesca Di Mauro view the ASL 5000 as a crucial learning tool. "We benefit a lot from the ventilator simulation," says Di Mauro. "And it's safe," says Goggs. "This is the best possible substitute for real patients and the residents love it." Goggs says residents using the simulator feel pressured to successfully treat the "patient," which enhances their learning experience.

The lung simulator can connect to RoboJerry, the high-fidelity canine patient simulator that Fletcher created in his office from a medical human mannequin and a stuffed dog. It wasn't an easy path: prototypes broke; Fletcher had to move his laboratory four times; and his industry partner backed out. But today RoboJerry's prognosis is strong, thanks to gifts from Janet and John Swanson, Joel and Kathy Hochman, the Hatfield Family Foundation, and the Triad Foundation. In 2014, Triad funded the Tetlow and Roy Park Veterinary Innovation Laboratory, named for chairman and president Roy H. Park, Jr. and his wife. The lab houses two examination rooms with adjoining conference rooms, storage, the ventilator simulator, and of course, RoboJerry.

Open up RoboJerry's Velcro® belly and you'll find a sturdy plastic ribcage housing the electronics, including an accelerometer chip that detects chest compressions and speakers to play normal and abnormal heart and lung sounds. An air tank with computer-controlled valves connected to a balloon under the plastic housing allows Jerry to "breathe." Sensors in his limbs can determine whether a student has found his pulse, and a real port accepts medications. All of his vitals can be programmed, then adjusted in real time.

And although this canine seems like the star of the show, he's really still a prop; the true finale is the talk-back. In advance of simulations, Fletcher and Goggs write scenarios emphasizing different aspects of emergency and critical care. When the team of students enters the Park Veterinary Innovation Lab, they're filmed by two cameras that feed into an adjoining room of classmates. The team receives the scenario, assesses the patient, plans, and treats, dealing with additional crises as they arise. Afterwards, Fletcher and Goggs help the group debrief by reviewing portions of the video and suggesting alternatives. Says Fletcher, "It's a powerful way to teach them concepts." Indeed, of 70 surveyed students who participated in a cardiopulmonary arrest scenario in 2010-2011, 100% felt the session expanded their CPR knowledge; 97% reported their skills and abilities had improved, and 73% agreed or strongly agreed that the scenarios generated emotions similar to real clinical situations.

Zachary Badanes, a third-year student who participated in a CPR simulation, said he was a bit nervous despite knowing it wasn't a real dog on the table. "The doctor is not in there with you, which is nice, because you and your classmates get to work as a team," says Badanes. "Afterwards the doctors go over everything that happened. I think you'd be hard pressed to find a student who wouldn't say it's a great benefit to their learning experience."

"I FEEL REALLY PRIVILEGED TO BE PART OF THIS CURRICULUM. WHEN I WAS IN VETERINARY SCHOOL, NOTHING LIKE THIS EXISTED."

—DR. CAROLYN McDANIEL

DR. ROLFE RADCLIFFE HELPS THIRD-YEAR DVM STUDENTS MOLLY HUNT, COURTNEY O'CONNELL, AND ANNE BORKOWSKI PRACTICE EQUINE RESCUE TECHNIQUES ON A LIFE-SIZED MODEL.

Goggs and Fletcher have also used both the ventilator and CPR simulations in continuing education labs for vet technicians.

Generous donors have supported simulation technology at the College. The Class of 1983 provided funds for the laparoscopy simulator, the Hatfield Family Foundation and the Triad Foundation supported the ventilator simulator, and The Hatfield Family Foundation also funded the equine mannequin.

DESIGNING THE FUTURE

Simulation is changing education at the College in ways faculty couldn't have predicted. "I feel really privileged to be part of this curriculum," says McDaniel. "When I was in veterinary school, nothing like this existed." She's currently working on a simulation of an ear canal to help students with otoscopy.

In the quest to teach more people via simulation, Hayes plans to extend her laparoscopy lab to students once she sees how residents respond to the FLS curriculum. Radcliffe expects to use the equine rescue mannequin with fire departments, which often receive the first call about a trapped or fallen animal. Fletcher and his colleagues are designing a Cardiopulmonary Boot Camp to be held at Cornell in the fall of 2017. The week-long continuing education course for critical care specialists and residents will focus on using simulators.

Fletcher also expects to make the software for operating RoboJerry open source and will put everything—including hardware plans—on the web so that people can download and augment the code, creating their own RoboJerry for $4,000 or less. "It's pretty exciting." he says. "Most days when I come into this room, I have to pinch myself to feel 'Is this really happening?' It's just amazing, considering where we started from and where we are now."

BREAKTHROUGH ALLOWS DRUG DELIVERY FOR BRAIN DISEASES, CANCERS

By Krishna Ramanujan
(*Another version of this story was previously published in the Cornell Chronicle*)

College researchers have discovered a way to open one of the major barriers to the brain, called the blood brain barrier (BBB), which prevents the entry of therapies to treat brain disorders, such as Alzheimer's disease.

The finding also has implications for treating all chemotherapy-resistant cancers.

For a century now, a major challenge in the treatment of diseases of the brain has been discovering how to safely deliver drugs across the BBB. The BBB is composed of a layer of specialized cells, called endothelial cells, which line the brain's blood vessels and safeguard the brain from unwanted substances. These cells also selectively allow entry of molecules needed for brain function, such as amino acids, oxygen, glucose and water.

College researchers report that an FDA-approved drug called Lexiscan, which is used in heart imaging, activates receptors – called adenosine receptors – that are expressed on these BBB cells.

"We can open the BBB for a brief window of time, long enough to deliver therapies to the brain, but not too long so as to harm the brain. We hope in the future, this will be used to treat many types of neurological disorders," says Margaret Bynoe, associate professor in the Department of Microbiology and Immunology. Bynoe is senior author of the study published April 4 in *The Journal of Clinical Investigation*. Do-Geun Kim, a postdoctoral associate in Bynoe's lab, is the paper's first author.

The researchers were able to deliver chemotherapy drugs into the brains of mice, as well as large molecules, like an antibody that binds to Alzheimer's disease plaques, according to the paper.

MARGARET BYNOE, ASSOCIATE PROFESSOR IN THE DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY.

To test whether this drug delivery system has application to the human BBB, the lab engineered a BBB model using human primary brain endothelial cells. They observed that Lexiscan opened the engineered BBB in a manner similar to its actions in mice.

Bynoe and Kim discovered that a protein called P-glycoprotein is highly expressed on brain endothelial cells and blocks the entry of most drugs delivered to the brain. Lexiscan acts on one of the adenosine receptors expressed on BBB endothelial cells specifically activating them. They showed that Lexiscan down-regulates P-glycoprotein expression and function on the BBB endothelial cells. It acts like a switch that can be turned on and off in a time dependent manner, which provides a measure of safety for the patient.

In addition to P-glycoprotein's role in inhibiting foreign substances from penetrating the BBB, the protein is also expressed by many different types of cancers and makes these cancers resistant to chemotherapy.

"This finding has significant implications beyond modulation of the BBB," Bynoe says. "It suggests that in the future, we may be able to modulate adenosine receptors to regulate P-glycoprotein in the treatment of cancer cells resistant to chemotherapy."

Because Lexiscan is an FDA-approved drug, "the potential for a breakthrough in drug delivery systems for diseases such as Alzheimer's disease, Parkinson's disease, autism, brain tumors and chemotherapy-resistant cancers is not far off," Bynoe says.

"THIS FINDING HAS SIGNIFICANT IMPLICATIONS BEYOND MODULATION OF THE BLOOD BRAIN BARRIER. IT SUGGESTS THAT IN THE FUTURE, WE MAY BE ABLE TO MODULATE ADENOSINE RECEPTORS TO REGULATE P-GLYCOPROTEIN IN THE TREATMENT OF CANCER CELLS RESISTANT TO CHEMOTHERAPY."

—DR. MARGARET BYNOE

DECIPHERING EQUINE SARCOIDS

By Merry Buckley

Lumpy, scaly, and sometime deadly: The most common form of cancer in horses is sarcoids, skin tumors that develop in some horses as small bumps under the skin or scaly lesions that can easily be removed by a veterinarian, but in other horses the problem becomes much more serious or even lethal.

Until now, little was known about why the papillomavirus behind sarcoids strikes some horses and passes over others. A new study by an international research group lead by scientists at the Baker Institute for Animal Health at the College reveals that genetic differences in immune function between horses partly accounts for these differences. The results could eventually help scientists design a therapeutic vaccine for sarcoids that could be administered to horses to help their immune systems fight off the infection.

"Many therapies have been proposed as the 'best' treatment for sarcoids," says Dr. Doug Antczak, the Dorothy Havemeyer McConville Professor of Equine Medicine who led the study. In some horses, tumors develop as small bumps under the skin or scaly lesions that can easily be removed by a veterinarian, but in other horses the problem becomes much more serious. Surgery, cryotherapy (freezing the tissue), laser treatment, injecting the tumors with drugs to kill the cells, radiation treatment, and immunotherapy have all been shown to cure these more recalcitrant tumors, "but some tumors tend to recur no matter what treatment is used, and there is no universal consensus on a uniformly successful therapy," says Antczak.

Antczak says scientists have known for years that bovine papillomavirus is the most likely culprit behind sarcoid tumors. Recent work from Europe suggests that variants of this virus have become adapted to horses and are probably the cause of most sarcoids.

Antczak and his team used a genome-wide association study to compare the genetic makeup of horses with and without sarcoid tumors at over 50,000 sites in the equine genome. They studied 82 sarcoid-bearing horses from the US and United Kingdom and 272 controls that did not have sarcoids. They found regions on chromosomes 20 and 22 that tended to be different in horses diagnosed with sarcoids, hard evidence that a horse's genes determine, in part, how susceptible it is to sarcoids.

Interestingly, this genetic link implicates the immune system in sarcoid susceptibility. The region of chromosome 20 associated with sarcoid development is located within a portion of the genome responsible for immune function called the Major Histocompatibility Complex (MHC) class II region. The MHC type that is associated with sarcoid susceptibility is very rare among Standardbred horses, a fact that may explain why sarcoid is diagnosed so rarely in this breed.

Antczak says knowing that the virus takes advantage of horses with a particular immune feature means a therapeutic vaccine for sarcoids could eventually be developed to bolster the immune response and help a horse recover.

Once such a vaccine is developed, "you could identify horses that are genetically susceptible and vaccinate them, or wait and treat them with the vaccine once they develop sarcoids," says Antczak.

"KNOWING THAT THE VIRUS TAKES ADVANTAGE OF HORSES WITH A PARTICULAR IMMUNE FEATURE MEANS A THERAPEUTIC VACCINE FOR SARCOIDS COULD EVENTUALLY BE DEVELOPED TO BOLSTER THE IMMUNE RESPONSE AND HELP A HORSE RECOVER."

—DR. DOUG ANTCZAK


3880
Cayenne

NEW MODEL ALLOWS BETTER DRUG TESTING FOR CAT EYE INFECTIONS

EYEING THE FUTURE

By Merry Buckley

It's a problem veterinarians see all the time. Cats infected with feline herpes virus 1 (FHV-1) will blink continuously, squint, and have teary, sore-looking eyes, but the drugs available to treat these eye infections must be applied multiple times a day and there is scant scientific evidence to support their use.

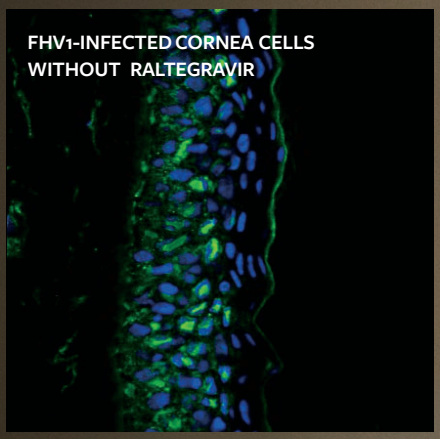
New research funded by a grant from the Cornell Feline Health Center makes it easier to test potential drugs for treating eye infections like FHV-1, a process that has delayed progress in the past. The scientists have also shown that a drug used for treating HIV infections in humans could be effective in treating herpes infections in cats.

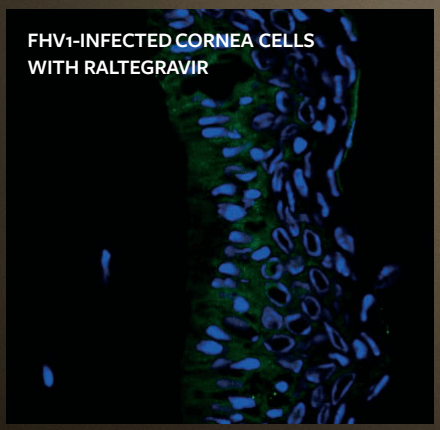
"Herpes-induced cornea infections are a big problem in cats," says Dr. Gerlinde Van de Walle, the assistant professor of viral pathogenesis who led the study. "If not treated, FHV-1 infection can eventually lead to blindness," she says.

"We wanted to develop a model system that could predict whether an antiviral drug would work against FHV-1 in cats," says Van de Walle. They were also searching for an easy way to identify drugs that could be given only once every 24 hours, because, as vets and many cat owners know, giving medication to a cat multiple times a day can be a painful thing to accomplish. Smearing ointment in a cat's eyes might be easy the first and second time, but once the cat learns what you're up to with that little tube, she will most likely hide or fight.

To develop the model, Van de Walle and her team used cornea tissues donated from cats that died of causes other than eye disease. The team proved that when placed in a warm bath of nutrient-rich, tear-like fluid, the corneas respond to a virus infection much the way a living cat's eyes do.

The team tested the effectiveness of two drugs that are used for topical treatment of FHV-1 eye infections in cats: cidofovir, which is frequently used in the clinic, and acyclovir, which has shown promise when given frequently. Both drugs cleared the infection when applied every 12 hours, but cidofovir was more effective.





RALTEGRAVIR PREVENTS INFECTION WITH FHV-1. ON THE SURFACE OF THE CORNEA, CELLS INFECTED WITH FHV-1 ARE LABELLED GREEN AND THE NUCLEI ARE BLUE. WHEN THE CORNEA IS TREATED WITH THE ANTIVIRAL DRUG RALTEGRAVIR, THE NUMBER OF VIRUS-INFECTED GREEN CELLS DECLINES SIGNIFICANTLY.

DR. GERLINDE VAN DE WALLE

Taking it a step further, Van de Walle and her team used the model corneas to identify another drug for treating FHV-1 infections. The antiretroviral drug raltegravir is commonly used in humans to treat HIV infections, and although some reports indicated it could be effective against human herpes viruses, it had never been used to treat FHV-1 in cats before.

"We found that it is very effective against FHV-1. It even worked when we applied the drug only once every 24 hours," says Van de Walle. This means raltegravir could be just as efficient as the other drugs available for treating FHV-1 infections, but would only have to be administered once daily. Van de Walle says she hopes eventually to see the drug tested in a well-controlled clinical trial.

SPECIALTY SPOTLIGHT: ANESTHESIOLOGY

By Lauren Cahoon Roberts

"THE VARIETY KEEPS YOU ON YOUR TOES; YOU'VE GOT TO RECALL INFORMATION ABOUT SO MANY UNIQUE SPECIES. THERE'S NEVER A BORING DAY."

—DR. JORDYN BOESCH '06

DR. MANUEL MARTIN-FLORES, IN SCRUBS, REVIEWS THE DAY'S CASES WITH DR. LUIS CAMPOY.

To the untrained eye, it might seem like the anesthesiology team at the Cornell University Hospital for Animals (CUHA) has it easy—walk in, put the patient under, and call it a day. This impression couldn't be farther from the truth. Almost every case that comes through the doors—from cats, to camels—will need the anesthesiology team's skills. Whether it's administering a light sedative, inducing general anesthesia, or prescribing pain killers for the post-procedure recovery, they're the ones charged with ensuring the patient remains still, stable, and pain-free. "Our job is to make sure everything is working as it should be, that all our patient's vitals are within normal, and that recoveries are smooth and pain-free" says Dr. Luis Campoy, section chief of anesthesiology at CUHA. "And this team works incredibly hard, every day, to do just that."

HIGH VOLUME, HIGH VARIETY

The 19-person team of anesthesiologists, residents, and technicians work on both the companion animal and large animal sides of CUHA, meaning they see a large percentage of the patients that visit the hospital each year, and a broad array of species. This variety is part of the appeal. "One of the things I love about this specialty is the fact that you work with such a variety of patients," says Jordyn Boesch '06, a lecturer in anesthesiology and analgesia. "The variety keeps you on your toes; you've got to recall information about so many unique species. There's never a boring day."

TAILORING TREATMENTS

On the companion animal side of the hospital, a grey-and-white pit bull shuffles slowly into the induction room, woozy from the sedative he's received to help calm him down. Resident Dr. Diego Portela is acting as anesthesia section chief this week as part of his final training (with back-up from Dr. Campoy), and this is one of the many cases he'll be overseeing today. He helps the anesthesia tech and student lift the muscular dog up and on to a gurney, and watches as the initial dose of anesthetic puts the dog into a deep sleep. Next, the tech and the student work quickly, yet calmly, to place a breathing tube into the pit's throat. "This is one of the most crucial moments," Portela says, explaining that some patients may stop breathing, or regurgitate food that could accidentally be inhaled. Thus, placing the endotracheal tube in as efficient and gently as possible is of utmost importance. Not only can oxygen can be efficiently provided and the patient quickly attached to a ventilator, but it also prevents any stomach content from entering the airway.

Meanwhile, in the OR, two very different canine patients are undergoing their corresponding surgeries. One, a young and healthy shelter pup, is undergoing a routine spay procedure. The other—a portly, older dog with a heart problem—is getting a skin tumor removed. Portela checks in with the anesthesia students who monitor the patients' ECG, heart rate, oxygen and CO_2 levels, blood pressure, temperature, and anesthetic

DR. LUIS CAMPOY, LEFT, AND DR. MANUEL MARTIN-FLORES. DR. JOY TSENG '14, BELOW.

depth. Periodically, the student gently taps around the dog's eye, looking for any sign of flinching—a sign that the anesthesia plane may be waning.

The older dog is on a ventilator, to better control and improve his breathing during the surgery. This is also monitored, with the student keeping tabs on the pressure, rate, and volume of ventilation. The younger dog is allowed to breathe on her own, but a ventilator is kept close, just in case.

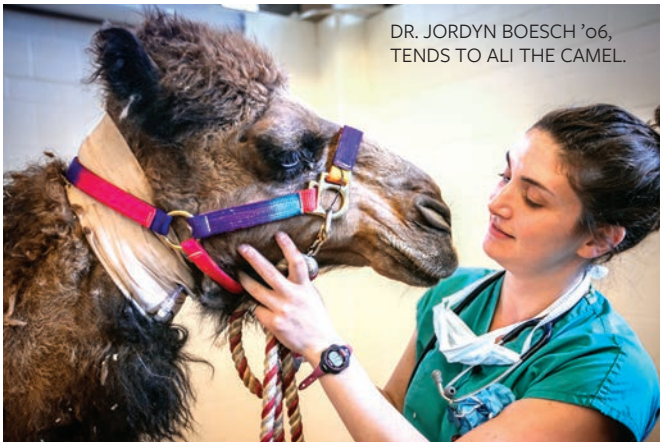
The two dogs get two different types of anesthetic that is tailored to their physiology; the older, more high-risk patient receives an analgesic that is given continuously. This allows for tighter and finer pain control. The younger, healthy pup receives a one-time dose of opioid before the procedure that will last the duration of the operation, with the option of giving another should it be needed.

FINE-TUNED CONTROL

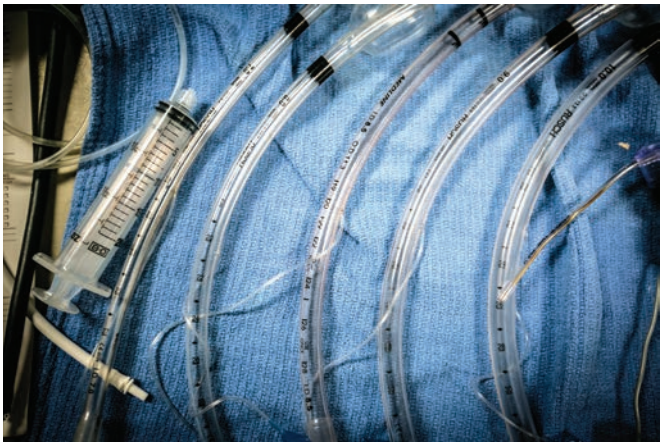
On the other side of the hospital, a young Thoroughbred with an undescended testicle that needs to be removed has just received his sedative. Anesthesia resident Dr. Joy Tseng '14 is in charge of this case, with Section Chief Dr. Robin Gleed, professor of anesthesiology, checking in. The medical team guides the wobbling horse into position in the induction room, secures him by the tail and the halter with ropes, and, with an injection of ketamine and midazolam, guides him to lay flat on his side. A few moments later, the horse is completely unconscious.

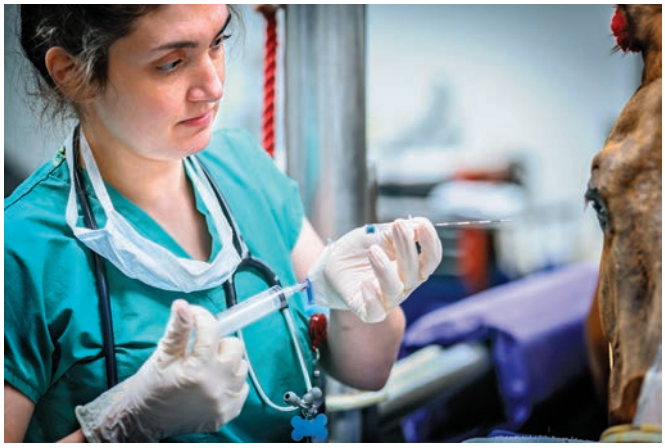
As with the small animal patients, the horse's vitals are closely monitored—and Tseng quickly takes issue with the animal's blood pressure. It's too low for her taste—not dangerously so—but not ideal. It's a fairly common reaction in horses under general anesthesia, and Tseng gives the Thoroughbred an infusion of dobutamine to boost the blood pressure to a more normal level. "This specialty is about fine control," says Gleed. "You want to be able to fine-tune control of the patient's bodily functions."

As the horse is rolled from the induction room over to the OR, the surgical and anesthesia teams prepare for the operation with an easy camaraderie. This kind of collegial atmosphere is something Assistant Professor of Anesthesiology Dr. Manuel Martin-Flores doesn't take for granted, noting the two services can tend to have a more contentious dynamic at other hospitals. "Here at Cornell, we're collaborative, we talk to each other continuously during the procedure," he says. "Not only does it make for a better working environment, but it's also improves the outcome of patients."



DR. JORDYN BOESCH '06, TENDS TO ALI THE CAMEL.





THE PATIENT'S ADVOCATE

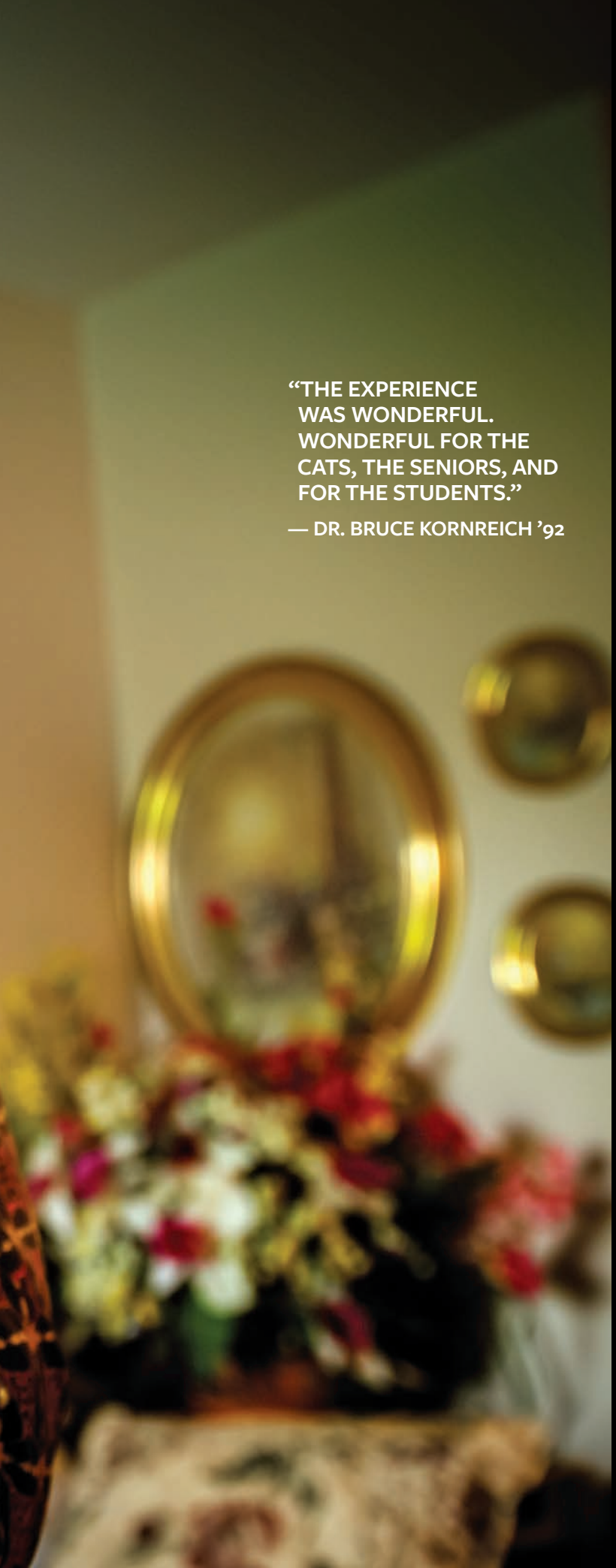
The anesthesiology team is also responsible for the patients' recovery from anesthesia and regaining consciousness—a process that is often disorienting and uncomfortable for animal patients. Horses can become bewildered and try to walk before they're ready; disoriented dogs can snarl and bite.

Post-procedure pain and nausea management is big piece to a veterinary anesthesiologist's skillset. Unlike their human doctor counterparts, this team cannot ask their patients how they're feeling after their procedure. Campoy recounts an interaction with Weill Cornell Medical College anesthesia residents, who rotate through CUHA as part of a cross-campus anesthesia elective rotation; as they followed Campoy on his rounds, they watched in wonder when the veterinarian looked at a canine patient and determined that it needed more anti-nausea medication. "I must have been asked four times about how I could tell that the dog was nauseous," says Campoy. "This is something that a veterinarian develops over time—you have to be very attuned to many little subtleties in the patient's body language. Almost like they do in neonates!"

It's this attunement to the patient's wellbeing and comfort that Martin-Flores particularly appreciates about the specialty. "As an anesthesiologist, you are the patient's advocate in a way," he says. "Of course, every service cares about the patient—but our primary job is to think about how they are feeling in the moment, and ensure they are stable. It's very rewarding to be the ones held responsible for that."

"AS AN ANESTHESIOLOGIST, YOU ARE THE PATIENT'S ADVOCATE IN A WAY. OF COURSE, EVERY SERVICE CARES ABOUT THE PATIENT—BUT OUR PRIMARY JOB IS TO THINK ABOUT HOW THEY ARE FEELING IN THE MOMENT, AND ENSURE THEY ARE STABLE. IT'S VERY REWARDING TO BE THE ONES HELD RESPONSIBLE FOR THAT."

—DR. MANUEL MARTIN-FLORES



"THE EXPERIENCE WAS WONDERFUL. WONDERFUL FOR THE CATS, THE SENIORS, AND FOR THE STUDENTS."

— DR. BRUCE KORNREICH '92

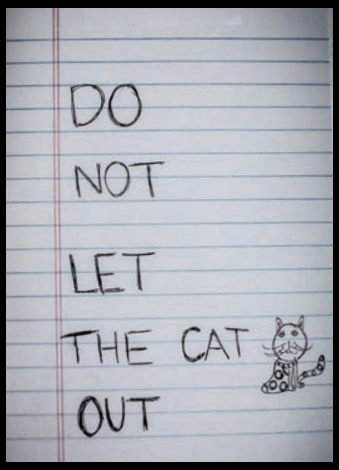
CATS FOR COMFORT:

PROGRAM CONNECTS CATS WITH SENIORS

By Merry Buckley

Picture a new kind of matchmaking service—one for cats who need a home, and senior citizens who want a furry companion. In the name of these feline-human love matches, the Cornell Feline Health Center is partnering with students from Cornell's College of Veterinary Medicine, the Tompkins County Society for the Prevention of Cruelty to Animals (TCSPCA), and faculty and students from Ithaca College's Gerontology Institute (ICGI) to provide cat adoptions to residents of Longview, a residential senior retirement community located in Ithaca. The Cats for Comfort program has the potential to improve the lives of many local seniors and cats, but once it is expanded, the Cornell Feline Health Center hopes to spread the adoption love to other facilities regionally, nationally, and internationally.

MARGE COBB AND PRINCESS (LEFT), ANKA (ABOVE)



The brainchild of Cornell Feline Health Center's Associate Director, Dr. Bruch Kornreich '92, the Cats for Comfort program aims to further the Center's mission by improving the lives of cats while also helping to improve the quality of life for seniors in assisted living facilities. At their first adoption event this winter, Kornreich and other team members met with Longview residents to help them complete adoption applications. The TSCPCA then reviewed all applications and brought a prescreened group of cats to an adoption event at Longview. In this early effort, three seniors went home with new feline friends.

"The experience was wonderful," says Kornreich. "Wonderful for the cats, the seniors, and for the students. The program has significant potential to benefit both cats and seniors, and we're looking forward to expanding it soon."

According to most recent estimates, approximately 3.4 million cats enter animal shelters nationwide each year. This burgeoning population places a great deal of stress on an already overburdened shelter network, resulting in the euthanasia of approximately 1.4 million cats annually. Increasing adoption rates for cats in shelters can provide considerable relief to our network of animal shelters while improving the lives of individual cats.

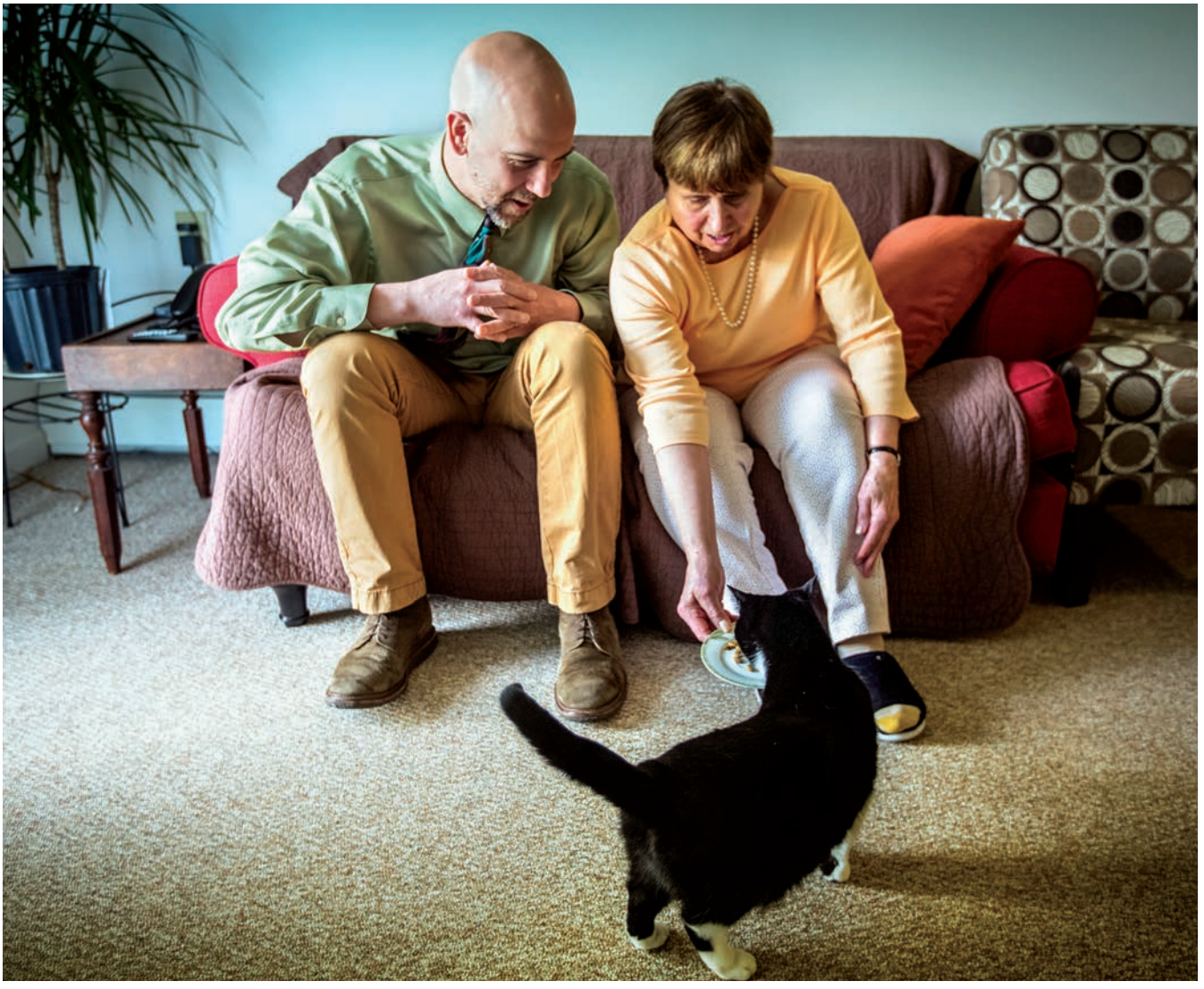
The benefits of pet ownership for the physical and psychological well-being of elderly people have been demonstrated in a number of studies. The elderly enjoy a variety of positive effects from interacting with companion animals, including greater levels of activity, decreased loneliness, and decreased risks for certain diseases. Given these potential health benefits and the relatively small risks associated with owning a pet, pet ownership is an attractive therapeutic tool to promote the well-being of elderly individuals. Sophia Sleh was matched with a black and white shelter cat whom she's named Anka. "I tell her how much I love her every day," says Sleh. "She makes me so happy."

Marge Cobb is just as pleased with her feline match, Princess—a blue-eyed, snow-white cat that loves to wander the halls of Longview with her owner.

Kornreich is working with faculty at ICGI to measure and verify the benefits of cat adoption for seniors involved in the Cats for Comfort program and making plans for the fall, when the team will expand the effort to other retirement communities in the region. Once these pilot programs and wellness studies are complete, they will draft guidelines for other organizations around the country—and possibly around the world—to carry out similar programs to benefit the lives of cats and seniors alike.

KORNRIECH AND ANKA (TOP); COBB AND PRINCESS (ABOVE)

"I TELL HER HOW MUCH I LOVE HER EVERY DAY. SHE MAKES ME SO HAPPY."—SOPHIA SLEH



KORNRIECH, SLEH AND ANKA

A GOLDEN GIFT

BILL GORGAS, THE FOUNDER OF CLANCYSCURE, AND HIS WIFE BARBARA DAVIS WITH THEIR GOLDEN RETRIEVERS, CHASE AND CLANCY.

"I WANT TO FIGHT THIS HEAD ON. I WANT TO DEVOTE MY ENERGY AND RESOURCES TO CURING CANCER."

—BILL GORGAS

Grief is never easy. However, as the poet Rumi said: "Grief can be the garden of compassion. If you keep your heart open through everything, your pain can become your greatest ally in your life's search for love and wisdom." This affirmation seems proven true by Bill Gorgas, the founder of ClancysCure, a foundation dedicated to support and advance the fight against cancer in both dogs and humans. He and his wife Barbara Davis were the loving pet-parents to two Golden Retrievers, Chase and Clancy. In just two short years, the two dogs forever changed Gorgas and Davis's lives—taking them through the depths of love and grief, and inspiring them to champion a cause that aims to touch the lives of countless others.

CANINE CELEBRITIES

Even before they became the faces of a foundation, Chase and Clancy were local celebrities in the close-knit community of Greenwich, Conn. The canine brothers had belonged to the Monsignor at the local church, and were an iconic fixture on the St. Mary's front lawn on the village's main avenue. When the elderly Monsignor had to retire to a nursing home, the dogs were in need of a new family—that's when Gorgas and Davis stepped in. The couple did not have children and had not owned pets since childhood, and the sudden addition of goofy, furry, unconditional love into their world was something Gorgas will never forget: "Before we had them, we were set in our ways," he says. "But then we got these dogs, and they just taught us to truly live in the moment. They taught us patience. It was life-changing."

GONE TOO SOON

Just a little over a year after he was adopted, Clancy started breathing heavily and became noticeably lethargic. When Gorgas and Davis took him to the veterinarian the next day, they were given the devastating news: Clancy had hemangiosarcoma, an aggressive kind of cancer that typically originates in the heart, liver or spleen and then spreads rapidly through the blood vessels. There was nothing that could be done to save their beloved friend, and Clancy was put to sleep the same day he was diagnosed. Tragically, Chase was diagnosed with the same disease roughly a year later, and passed away in March 2016. "I can't even tell you what those dogs meant to us," says Gorgas, who still grieves for both pets.

FROM PAIN TO PURPOSE

The first blow of losing Clancy was transformative, however. "Literally within two days of Clancy passing away, I came up with the idea of ClancysCure," says Gorgas. "The more I thought about it the more passionate I became." His passion transformed to action, and a few short months later, ClancysCure was created; an endowment with 100% of proceeds going directly to the Cornell University College of Veterinary Medicine's cancer research. With Chase's recent passing, Gorgas and Davis are more committed than ever to making a difference through ClancysCure. "I want to fight this head on," says Gorgas. "I want to devote my energy and resources to curing cancer."

CORNELL'S ANTI-CANCER CRUSADE

Originally, canine cancer was Gorgas' main focus. But, he soon realized the mission could, and should, expand to include the human angle of the disease as well. Fortunately, through supporting the College's research, ClancysCure will do both; the discoveries made here frequently are leveraged to impact dogs, people and other species.

Numerous researchers across departments are tackling cancer using different genomic, epigenomic, molecular, and cellular approaches. The College also hosts the Cornell Comparative Cancer Biology Program, which supports basic, translational, and clinical cancer research. The program also serves as a hub for several new cancer-related initiatives undertaken in conjunction with Weill Cornell Medicine and Cornell's new Meyer Cancer Center. An example of this is the cross-campus Cornell Lymphoma Program and its associated Progressive Assessment of Therapeutics (PATh) Program, run by Professor of Biomedical Sciences Dr. Kristy Richards, to develop a multi-species and multi-platform approach to the development of effective new drugs for cancer treatment.

BUILDING MOMENTUM FROM A MEMORIAL

Having only been launched on September 10, 2015, ClancysCure has grown into a full-fledged cause with plenty of local publicity and momentum. One of Gorgas' recent successes has included piquing the interest of renowned journalist Katie Couric, who sent one of her producers to a seminar sponsored by ClancysCure. The talk featured Cornell's Dr. Robert Weiss, professor of molecular genetics and leader of several cancer research initiatives at the College, who spoke about the latest efforts on curing cancer in canines and humans. Additionally, ClancysCure now has a partnership with Wooftrax, a free app that converts dog walks into donations for selected charities, making it easy for anyone to contribute to canine cancer research at Cornell.

Gorgas wants it to see it expand further. "My goal is to make this as national as we can. It's an endowment, so it will live forever—but that takes time to build," says Gorgas. "It's one dollar at a time, that's how I think about it." Of course, there are times when the grief will still make Gorgas pause. "At one point, I asked my wife, 'why did we get them, only to have them be taken away?' and she responded, 'the question we should be asking instead is, 'why were they given to us?'" Gorgas recalls. "We both have since come to believe that the answer is ClancysCure."

FARVets:
ON A MISSION TO MAKE A DIFFERENCE

For some students, booking a trip to a tropical location during spring break means partying and piña coladas. But for members of FARVets (Field, Abroad, Reaching-out Veterinarians) it means something a little more rigorous—say, for example, spaying or neutering 149 pets and strays in just five days. This is exactly what the College-based club did this past spring during their visit to the Yucatan Peninsula. While the trip was hard work, it provided a big win-win: providing sterilization surgery and basic veterinary care to animals in need, while also giving students vital hands-on clinical experience.

FARVETs was founded by Dr. Paul Maza, senior lecturer of anatomy and primary care, to both engage Cornell veterinary students in surgical experience while helping to address local feral and pet overpopulation issues in developing countries. Their first trip took students to Playa del Carmen, Mexico, in 2010 where they examined, treated, and sterilized 45 animals. The group became certified as a 501c3 non-profit organization in 2015, and has continued to expand its outreach to multiple communities across the globe, including places in Bulgaria, Costa Rica, Belize, Nicaragua, Thailand, and Grenada.

DR. PAUL MAZA, FARVETS FOUNDER

SWELL CHICK PHOTOGRAPHY

This past spring's Mexico trip featured two destinations—Puerto Morelos and Playa del Carmen once again. "Both trips provided a unique opportunity to practice and acquire surgical skills while living in the local community," says group leader and board member Jami Landry '17. "Unlike many other international spay/neuter organizations, FARVets keeps the number of student participants small for each trip, ensuring one-on-one mentorship and increasing the breadth of surgical experience. It also encourages more interaction with our hosts and the local community."

The Puerto Morelos team worked with the animal welfare organization Planned Pethood International, which was mid-way through building new clinical facilities. This didn't stop the volunteers, who performed surgeries on ironing boards in the glass-walled, naturally-lit surgical suite. Most of their patients were dogs owned by residents of a local squatter community, who were transported in each day by a dedicated team of volunteers. In just four days, the six-person FARVets team successfully completed 86 sterilization surgeries.

Down the coast in Playa del Carmen, the other FARVets cohort worked with the non-profit Coco's Animal Welfare, where, over the course of the five-day clinic, the team helped to spay and neuter 63 street and shelter animals. This isn't the first time FARVets has collaborated with Coco's: their partnership began on FARVet's inaugural trip back in 2010. Since then, Coco's has invited FARVets back every year to participate in their ongoing low-cost spay/neuter clinic.

One of those students on the inaugural FARVets trip was current trip leader Dr. Katie Emerson '13, now a staff veterinarian for SPCA Suncoast in Florida. "My first trip to Coco's with FARVets had a profound impact on my career path as a veterinarian," says Emerson. "The hands-on experience and individual instruction provided by Maza and the Coco's veterinarians convinced me that with practice I would have the skills and ability necessary to make a career doing clinics like this."

This latest clinic trip has set a new club record for most animals treated, one that Maza hopes to break soon. "The two-pronged venture in Mexico represents the potential to implement many trips to come in which FARVets will coordinate clinics in several locations within the same country simultaneously," says Maza.

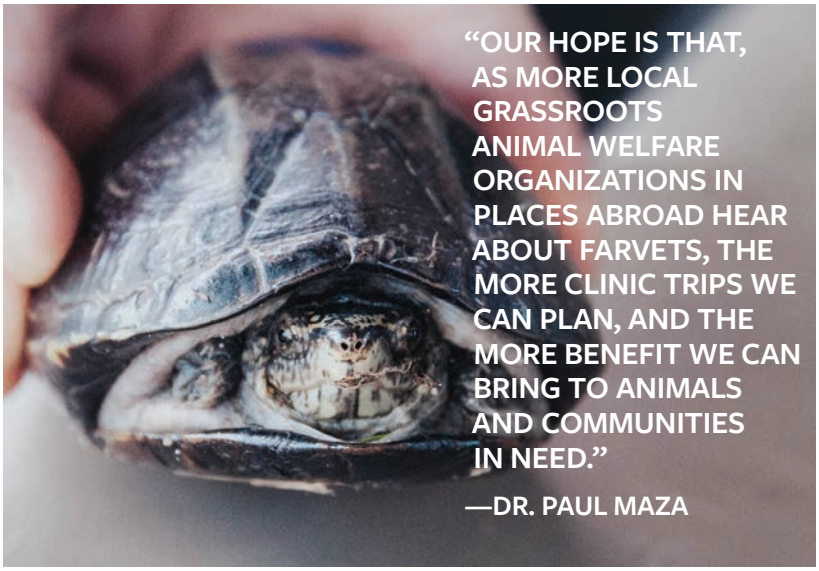
IN JUST FOUR DAYS, THE SIX-PERSON FARVETS TEAM SUCCESSFULLY COMPLETED 86 STERILIZATION SURGERIES.

"BOTH TRIPS PROVIDED A UNIQUE OPPORTUNITY TO PRACTICE AND ACQUIRE SURGICAL SKILLS WHILE LIVING IN THE LOCAL COMMUNITY."

—JAMI LANDRY '17

"This way, we can increase the total number of sterilization surgeries, boost access to services for people with limited transportation, and increase the support and resources for each individual surgical team."

Next year, FARVets plans a spring break trip with three simultaneous clinics in Puerto Morelos, Playa del Carmen, and Chetumal, Mexico. Upcoming destinations also include Thailand in July 2016, Nicaragua in November 2016, and Belize in January 2017. "Our hope is that, as more local grassroots animal welfare organizations in places abroad hear about FARVets, the more clinic trips we can plan, and the more benefit we can bring to animals and communities in need," says Maza.



"OUR HOPE IS THAT, AS MORE LOCAL GRASSROOTS ANIMAL WELFARE ORGANIZATIONS IN PLACES ABROAD HEAR ABOUT FARVETS, THE MORE CLINIC TRIPS WE CAN PLAN, AND THE MORE BENEFIT WE CAN BRING TO ANIMALS AND COMMUNITIES IN NEED."

—DR. PAUL MAZA

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CENTRAL AMERICA

Railways represented thus

0 10 20 30 40 50 75 100 150
Geographical Miles 60 One Degree

0 10 20 30 40 50 75 100 150
English Miles 69 One Degree

Recently, Dr. Michelle Vitulli '91 established the Caring Hands Veterinary Scholarship at the College to give academic and business mentorship to students. We chatted with Vitulli, founder and owner of Caring Hands Animal Hospitals, on her experiences with Cornell, her career, and controlling one's destiny.

ALUMNI Q&A: DR. MICHELLE VITULLI '91

RISK AND REWARD

By Lauren Cahoon Roberts

DAVID BETTS / METROPOLITAN PHOTOGRAPHY

Q: WHICH PROFESSIONAL ACHIEVEMENT ARE YOU MOST PROUD OF AND WHY?

My biggest pride and joy is getting to say I'm a veterinarian, and that I'm always working towards helping animals and their owners. I love the relationship we have with our clients and their pets, being part of their family experience, and helping them through the different life stages of pet ownership. I really enjoy that day-to-day connection with clients. My second biggest source of pride is having eight practices with 150+ employees, and 35 veterinarians. Truly I feel blessed to have experienced growing Caring Hands over the past 19 years.

Q: WHAT WERE YOUR MOST MEMORABLE EXPERIENCES AS A CORNELL DVM STUDENT?

I always enjoyed the large animal experiences, even though I knew I wanted to be a small animal practitioner, I still loved working on the dairy farm, rounding up the sheep, getting to work on the horses—I knew I had had the rest of my life to work on small animals, so I really enjoyed that well-rounded education. I also loved anatomy—that left a memorable impression, particularly rounds with Dr. de Lahunta.

Q: AS PRACTICE OWNER, WHAT ARE SOME OF THE CHALLENGES THAT COMES WITH THAT PATH?

Knowing how to get started. Getting from "where I am" to "where I want to be" is tough. Specifically, finding a location and getting a loan can be the toughest part.

In terms of location, you need to have a realistic understanding of the demographics of where you're going to be. No matter how great an experience you create for your clients, it still matters how populated the region is, and what other hospitals are around as competition. You need to be very practical with numbers and data. Also, it's important to consider partnerships, because having a partner can really help ease the burden of practice ownership—doing it alone might make it a lot more challenging.

In terms of loans, banks often view practices as lower risk, particularly if you are purchasing an existing practice. Aspiring practice owners should look into existing practices and talk with the owners about these kinds of opportunities.

Q: WHAT ARE SOME OF THE BENEFITS OF BEING A PRACTICE OWNER?

I view veterinary medicine as having a seven-to-ten year learning period, during which you're really learning how to be a good doctor. That period is very rewarding, but once it's over, you may feel a little stagnant. When you're a practice owner, there's a new challenge to build a team and to see a practice grow. Coaching and mentoring younger associates as they grow into their own careers can be extremely fulfilling.

Financially, you have a lot more opportunity to build upon your personal wealth and to have control of your destiny on how much you want to work. You don't necessarily have to work 60 hours a week to be a successful practice owner—you can develop that success through being a good leader, by fostering a good reputation in the community, and building up your practice that way.

"WHEN YOU'RE A PRACTICE OWNER, THERE'S A NEW CHALLENGE TO BUILD A TEAM AND TO SEE A PRACTICE GROW. COACHING AND MENTORING YOUNGER ASSOCIATES AS THEY GROW INTO THEIR OWN CAREERS CAN BE EXTREMELY FULFILLING."

—DR. MICHELLE VITULLI '91

MAKING NEW MEMORIES

Hats off to another fantastic reunion weekend! The College welcomed back more than 330 attendees including 181 alumni for the time-honored celebration that included parties, talks, and tours. Members of the DVM Classes ending in 1s and 6s gathered to reminisce and reacquaint themselves with the new and changing College grounds. A particularly special guest this year was Dr. Samuel Bender DVM '41, who, at the age of 100 years young, had the distinguished honor of being the oldest grad school alumnus in attendance at Cornell's reunion weekend.

The weekend included hands-on demonstrations of simulation teaching tools, including the brand-new, life-size equine mannequin used for rescue training, and RoboJerry the robot canine patient. Alumni and guests also got a chance to go on guided tours of the capital expansion construction project.

On Saturday morning, Dean Lorin Warnick gave the State of the College address. "As part of the Cornell veterinary community, we enjoy the benefits of being associated with an institution that has a legacy of excellence ... " he said to the crowd. "We enjoy this reputation in large part because of the careers of all of you alumni and I applaud you for your many successes."

Warnick also announced the winners of the two major awards given out at reunion, the Dean's Cup, established by the class of 1961, and awarded to the Class with the highest percentage of members making a gift, went to the Class of 1986, with 67% participation. The 25 Club Cup, recognizing classes out of school for 25 or fewer years which reach 25% or more participation, was awarded to the Classes of 1991 and 1996.

The reunion concluded with the ever-popular Class dinners held at restaurants throughout Ithaca, where old friends could raise a glass (or two) to their memories of days gone by.

"I was glad to be able to come to all of it and be a part of it," says Jennifer Stachnik '06 "it's my first time back since graduation, so a lot of things have changed, but it's great to reconnect with classmates and see some of the changes—there are a lot of memories."

THE CLASS OF 1986, WINNER OF THE DEAN'S CUP, POSES WITH DEAN LORIN WARNICK.

IN MEMORIAM

Since the Spring 2016 issue of 'Scopes, the College has been notified of the passing of the following:

Dr. William "Bill" H. Baker '57, May 21, 2016
Dr. John Bouffard '76, February 23, 2016
Dr. Gary M. Cane '66, April 28, 2016
Dr. Hunter Cohen '46, June 1, 2013
Dr. C. Fred Crist '57, March 4, 2016
Dr. Charles Durland '56, January 16, 2014
Dr. Harold C. Edinger '81, April 24, 2016
Dr. Daniel J. Hannigan '50, March 24, 2016
Dr. Benjamin A. Linden '41, March 23, 2004
Dr. George McKinney '41, December 29, 2005
Dr. Robert C. Nelson '53, January 15, 2016
Dr. Burton Saunders '55, April 6, 2016
Dr. Myron G. Schultz '58, February 19, 2016

NEW YORK STATE FALL VETERINARY CONFERENCE

NEW YORK STATE
VETERINARY CONFERENCE
FALL 2016
SEPT 30-OCT 2 • ITHACA, NY

September 30 – October 2, 2016
Ithaca, NY

HOSTED BY
New York State Veterinary Medical Society & Cornell University College of Veterinary Medicine

DONKEY WELFARE SYMPOSIUM Covers veterinary care, welfare and humanitarian importance of donkeys worldwide.

GOOD 'OL DOG AND CAT FUND LECTURE SERIES Dr. Katherine Goldberg lectures on geriatric and palliative/hospice medicine.

CLINICAL INVESTIGATORS DAY Highlights clinically relevant research at the College while offering participants free continuing education credit.

THE DEEDEE ARRISON HOLISTIC & INTEGRATIVE WELLNESS SEMINAR Features a laboratory by Dr. Barbara Fougere on herbal medicine and lectures on their use in common veterinary conditions, including cancer support and treatment.

THE CHESTER HARTENSTEIN DVM '45 MEMORIAL LECTURE SERIES Dr. John Rossmeisl will offer six hours of lectures focused on the most common neurologic challenges of dogs and cats.

EQUINE PROGRAM AND TECHNICAL LARGE ANIMAL EMERGENCY RESCUE A mix of lectures and laboratories focusing on the roles of the veterinarian, owner, emergency responders and others involved in large animal rescue operations as well as emergency and disaster scenarios and response. Dr. Rebecca Gimenez will conduct a lab on large animal rescue using an equine mannequin.

REGISTER ONLINE AT WWW.NYSVC.ORG



Science that saves: College clinical trials

Our clinician-scientists are always working to discover new and better treatments for animal patients. If you have a pet or a patient that might be a candidate for one of Cornell's clinical trials, contact us at vet-research@cornell.edu. To learn more about each study, please visit **vet.cornell.edu/clinicaltrials**

DOGS

- Investigating a new drug for osteosarcoma
- Lymphoma: banking lymph nodes
- Testing a new treatment for lymphoma
- New pain medication for dog having back surgery
- Optimal wound closure in stomach surgeries
- Treatment of dogs with immune-medicated hemolytic anemia
- Outcome of trauma in emergencies
- Determining if dogs with autoimmune disease have low vitamin d levels
- Using platelet rich plasma to treat dogs suffering with arthritis and lameness in one knee
- Determining which knee surgery has a better long-term outcome

CATS

- Developing a new treatment for cats with injection site sarcomas
- Treatment for cats with non-responsive stomatitis
- Understanding the genetics of feline infectious peritonitis
- Feline tick/lyme disease surveillance program
- Investigating a new class of anti-cancer drugs for mammary cancer

EXOTICS

- Determining the best treatment for rabbits with gastric outflow obstruction

vet.cornell.edu/clinicaltrials

CORRECTION:
In the Spring 2016 issue, we stated on page 43 that the Alumni Association issued challenge grants to fund endowments for the Expanding Horizons program and healthy pet clinics. The Expanding Horizons endowment fundraising effort was initiated by Dr. Ton Schat PhD '78, who spearheaded the campaign for donations from corporate and alumni donors. This effort was listed as taking place in 2014, but the fundraising started in 2011. The endowment funding for healthy pet clinics was initiated by Dr. Dwight Bowman, who also garnered support from corporate and alumni donors.

A NOW-ICONIC PART OF CORNELL COMMENCEMENT, THE DVM CLASS OF 2016 WAVE INFLATED EXAM GLOVES IN CELEBRATION DURING THE CEREMONY

Cornell University
College of Veterinary Medicine

Box 39
Ithaca, NY 14853

TEAM MEMBERS FROM FARVETS, A CORNELL-BASED STUDENT CLUB, AND HOPKINS BELIZE HUMANE SOCIETY STAFF, CARRY VILLAGE DOGS BACK TO A CLINIC FOR TREATMENT.

SWELL CHICK PHOTOGRAPHY