



Cornell University  
College of Veterinary Medicine

# 'SCOPES

FROM STETHOSCOPES | TO MICROSCOPES | TO THE SCOPE OF THE COLLEGE Spring 2015



**SESQUICENTENNIAL CELEBRATION:**  
FROM THE PAST TO THE FUTURE OF  
VETERINARY MEDICINE AT CORNELL

**Cornell University  
College of Veterinary Medicine**

S2016 Schurman Hall  
College of Veterinary Medicine  
Cornell University  
Ithaca, NY 14853-6401  
Phone: (607) 253-3744  
Fax: (607) 253-3740  
E-mail: [vetfriends@cornell.edu](mailto:vetfriends@cornell.edu)  
Website: [www.vet.cornell.edu](http://www.vet.cornell.edu); [www.cuvs.org](http://www.cuvs.org)

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**Editor:** Carly Hodes  
**Designer:** University Communications Marketing Group  
**Writers:** Merry Buckley, Carly Hodes, Michael Carroll, Krishna Ramanujan, Susanne Whittaker  
**Photographers:** Mike Carroll, Carly Hodes, University Communications Marketing Group, Alexis Wenski-Roberts

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# 'SCOPES

Spring 2015

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**FROM THE ARCHIVES:** Dr. Myron G. Fincher, 1955



**Dr. Michael I. Kotlikoff,**  
Austin O. Hoey Dean of Veterinary Medicine

## Dean's Message: Sesquicentennial Letter

I write this letter while flying back from Hong Kong, where a number of Cornell faculty, senior administrators, and staff celebrated Cornell's Sesquicentennial with 750 devoted alumni. Cornellians from Hong Kong, but also Tokyo, Singapore, Seoul, Bangkok, Taiwan, and Beijing, celebrated three days of lectures, events, and Cornell history. I have scarcely ever met a more enthusiastic, generous, and grateful group of graduates. From Hong Kong the celebrations will move to several other cities across the world.

As we contemplate and celebrate Cornell's grand tradition and the important role of the College, permit me a few observations as a relative newcomer (Carolyn and I celebrate our 15th year at Cornell during this 150th Birthday—newbs, as they

**“The history of Cornell's founding—the principles of academic excellence, the creation of new knowledge, and (crucially) societal contributions through public engagement—continue undiminished.”**

say). Having occupied a central geographic location on campus, the College moved from what is currently the Industrial and Labor Relations School to its present location in 1957 so that it could expand its clinical and research facilities.

A recent anecdote that is making the rounds illustrates the fact that the time had come. Until 1957 every Cornell President had lived in the A.D. White House across from Goldwin Smith Hall. That year, however, President Malott and

his wife moved to Cayuga Heights, where the University had purchased an elegant home. As documented in the recent book “Cornell” by Professors Glenn Altschuler and Isaac Kramnick, the Veterinary College was the reason for this move. Apparently, Mrs. Malott urged that they move from the A.D. White House because she was being kept up at night by the constant howling of the dogs housed at the College, then across the street. When I recently informed two of the likely culprits, Emeritus Professors Alexander (Sandy) de Lahunta and Howard Evans, of this history (of which they were completely unaware), they howled with glee. This was the era of the coonhound tick paralysis studies, and Sandy and Howie were entirely unrepentant regarding their role in driving the relatively unpopular Malotts from the campus. I am not sure what role this event played in solidifying the

University's support of the College's plan to move East, but the event seems to indicate that it was indeed high time.

That move is symbolic, as we will now embark on the most extensive restructuring and reimagining of those 1957 facilities as well as others. Before leaving for Hong Kong, I was pleased to report that the Buildings and Properties Committee of the Board of Trustees gave final approval for the College's ~\$90 million capital project that will transform our physical spaces. The project, which will renovate many of the College's 1957 buildings and replace the beloved, but faded, James Law Auditorium, began early in the New Year and be completed during the summer of 2017.

The capital plan that we embark on will eliminate four buildings that cannot be cost effectively renovated, removing approximately \$32 million in deferred maintenance costs that the College would otherwise eventually face. It will markedly lower our energy utilization and costs as we reskin the Veterinary Research Tower, one of the least efficient structures on our campus. It will also generate substantially more revenue for the College beginning in 2017, as the pre-clinical classes are expanded, while clinically training roughly the same number of students as at present. The project has been made possible by significant support from Governor Cuomo and the New York State legislature, as well as the enormous generosity of Janet and John Swanson, who have named our new atrium, Judy and Fred Wilpon, who have named our entrance courtyard, and Donald and Rita Powell, who have named one of our new classrooms, and many others mentioned in this issue's story on named spaces.

One hundred fifty years ago, veterinary medicine was at the core of the University's plans for "any person, any study." Represented within the cadre of the 12 founding faculty, the Veterinary College was the first of Cornell's professional schools (and third school established after Arts and Sciences and Engineering). I have written previously of Law's critical

decision to establish veterinary medicine as a graduate, doctoral-level discipline at a time when most medical degrees were baccalaureate and largely apprenticeships, and of the many early advances and discoveries in animal and human health emanating from Cornell and Cornell graduates since that time that have led to the reputation we currently enjoy. Many, but certainly not all, of the major discoveries and programmatic initiatives are highlighted in this issue.

The history of Cornell's founding—the principles of academic excellence, the creation of new knowledge, and (crucially) societal contributions through public engagement—continue undiminished. It is in that spirit that the College seeks to advance animal health and veterinary education in Asia. Our partnership with City University of Hong Kong has launched as a graduate program and I used the opportunity of this trip to help plan our recruitment of students who will pursue their training in Hong Kong and Ithaca. It is also in that spirit that we have recently established the new Center for Animal and Public Health, directed by Associate Professor and Associate Dean Alex Travis. This cross-campus One Health/Global Health initiative will leverage faculty expertise in aquaculture, epidemiology, zoo and wildlife, and environmental toxicology; organize student experiences and outreach abroad; foster opportunities for faculty collaborations with the Atkinson Center for a Sustainable Future; and develop a cross-campus Masters in Public Health Program.

We are pleased to offer this issue of 'Scopes. As we celebrate Cornell's glorious Sesquicentennial, the College remains committed to the principles of Andrew Dixon White and Ezra Cornell, guided by the vision of James Law, inspired by the past contributions of our faculty and alumni, and dedicated to the advancement of animal and human health.

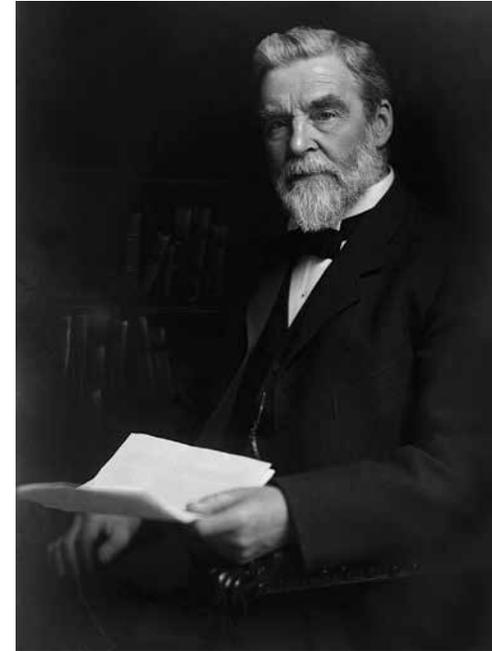
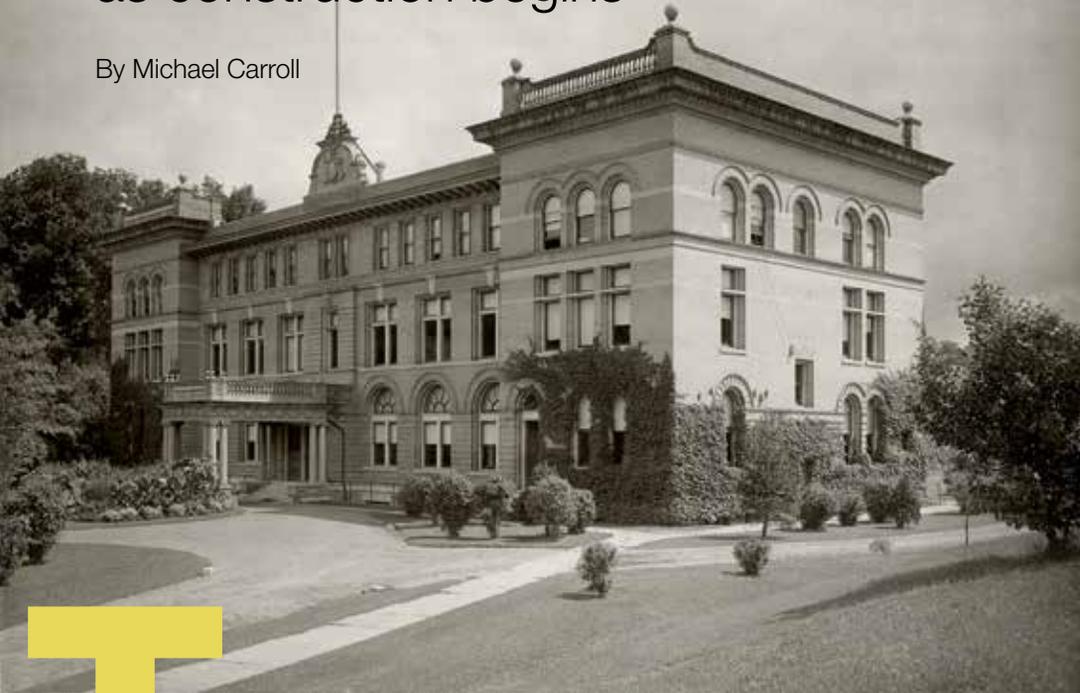


Celebration honoring James Law Auditorium. The historical space will be demolished in the first phase of the project.

SAYING GOODBYE

## College honors James Law Auditorium as construction begins

By Michael Carroll



Dr. James Law

The College community marked the beginning of the class expansion project construction with a celebration honoring James Law Auditorium. The historical space will be demolished in the first phase of the project.

Dr. James Law was a professor at the College from 1868 to 1908 and the first professor of veterinary science at an American university. The first building for veterinary medicine at Cornell was located near the center of campus and named James Law Hall. It was razed after the College moved to its current location in 1957.

Law was extremely influential in the control of animal diseases and the role of veterinarians in both animal and human health. The auditorium honoring Law's contributions became a beloved part of the College. Along with being a lecture hall for future veterinarians, it has been home to auctions, senior skits, and musical performances.

"From rehearsals no matter how tired I was, to singing with a wonderful orchestra for a packed house, farewell James Law Auditorium, thanks for the great memories," said Dr. Elia Colon-Mallah '92.

To mark the demolition of the auditorium and the beginning of construction, a group of students and staff entertained a packed house with a comedic musical performance arranged by veterinary student Jacob Wolf '17.

"As we say goodbye, we want to pause for a moment in sentimentality to acknowledge all we will miss in the venerable venue," said Katherine M. Edmondson, PhD, assistant dean for learning and instruction.

"Sitting in those velvet covered theatre seats, with the majestic oil portraits of the deans looking down upon me, I was humbled to be in their presence."  
—Dr. Susan Ackermann '86



Though we will physically lose James Law Auditorium, parts of it will remain. The paintings of Cornell's forefathers will be stored in a facility and returned to the campus after construction is complete. The image of James Law will be restored and returned to the College. Members of the College community will have the chance to permanently own a piece of history by obtaining bricks and seats from the lecture hall.

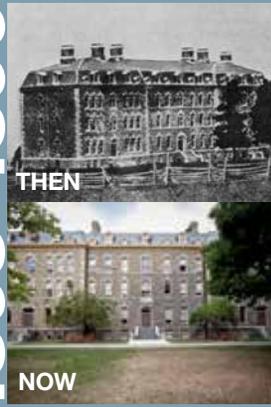
"Sitting in those velvet covered theatre seats, with the majestic oil portraits of the deans looking down upon me, I was humbled to be in their presence," said Dr. Susan Ackermann '86. "Even 28 years post-graduation, to sit where my second family of exceptional instructors, clinicians, mentors, and colleagues have enjoyed learning and laughing, I admit that it will be sad to lose that physical presence. But the memories are mine forever."

PLACES AND FACES: FACILITIES AND THEIR NAMES

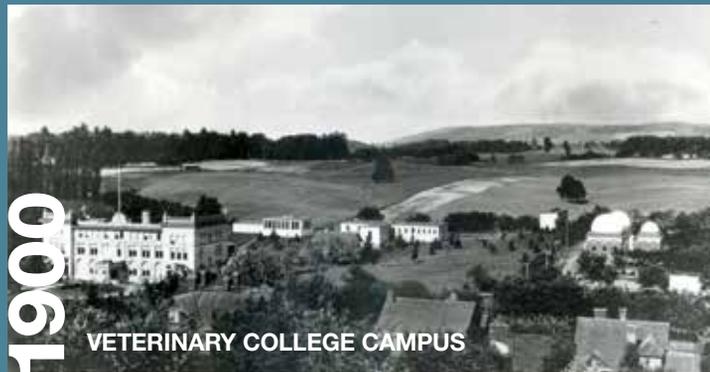
THEN

1868-1896

SOUTH CAMPUS

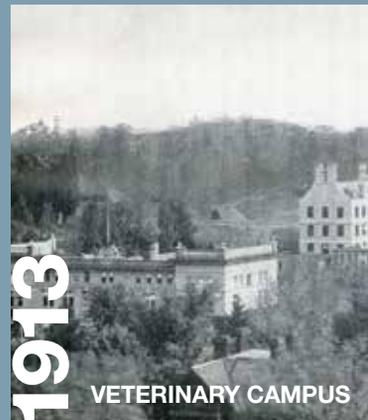


**Morrill Hall** As chair of veterinary medicine after the University opened in 1868, Dr. James Law worked in Morrill Hall, currently on the Arts Quad. There was a second room in the basement for a museum and pharmacy. The veterinary department later moved to a wooden building near present-day Goldwin Smith Hall, then to McGraw Hall before a separate building was constructed for the College after its founding in 1894.



1900

VETERINARY COLLEGE CAMPUS



1913

VETERINARY CAMPUS

1896-1956

LOWER CAMPUS



**James Law Hall** Construction on the Main Building started in 1895. The new College's first classes were held there in fall 1897. In 1914 the Cornell Trustees renamed the building James Law Hall in honor of Dr. James Law, the University's first professor of veterinary medicine in the United States and the College's first dean. Five smaller buildings were also built to complete the veterinary campus.



DR. JAMES LAW



**College Library** The Roswell P. Flower Library was established in 1897 with a gift from former N.Y. Governor Flower. It was located in two rooms in James Law Hall. It relocated to Schurman Hall in 1957. The library expanded into the Veterinary Education Center in 1993, becoming the Roswell P. Flower-Isidor I. and Sylvia M. Sprecher Library and Learning Resources Center.



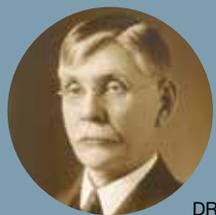
GOVERNOR FLOWER



**Clinic Buildings** As the College's clinical facilities strained capacity, construction of three new buildings began east of James Law Hall. Completed in 1913, they included a central four-story Large Animal Medical Building flanked by two three-story buildings for the Small Animal Clinic and a Farriery. These buildings are currently known as King-Shaw Hall occupied by the School of Industrial and Labor Relations.



**Moore Laboratory** The Moore Laboratory was completed in the autumn of 1938 and named in honor of Dr. Veranus Alva Moore, the College's second dean. It housed the departments of Pathology and Bacteriology, Avian Diseases, and the Diagnostic Laboratory along with laboratories, offices, and lecture rooms. This building is now part of Ives Hall, housing the ILR school and still features a stone over the door with two chiseled bovine heads and a shield.



DR. VERANUS ALVA MOORE

ESAKES

# & NOW



1938

VETERINARY CAMPUS



1957

VETERINARY CAMPUS



THEN



NOW

1957-PRESENT

UPPER CAMPUS



THEN



NOW

**Schurman Hall**  
In 1957 the College moved to new quarters on upper campus. Schurman Hall was named for Cornell's third president, Jacob Gould Schurman. With James Law, he successfully lobbied the state legislature to establish Cornell's veterinary college in the 1890s. Schurman Hall still contains administrative offices, the library, and student laboratories.



JACOB GOULD SCHURMAN



THEN



NOW

**Veterinary Research Tower**  
Initially called the Multicategorical Research Facility, or "Multicat" for short, the nine-story building was completed in 1975. It currently houses several academic departments, research laboratories, and offices.



THEN



NOW

**Diagnostic Laboratory – Animal Health Diagnostic Center (AHDC)**  
In 1976, a separate two-story building was constructed to house the College's Veterinary Diagnostic Laboratory, which became the state laboratory for animal health in 1966 under a contract with the New York State Department of Agriculture and Markets.  
In 2010, a new multi-story New York State Veterinary Diagnostic Laboratory building, known as the Animal Health Diagnostic Center was completed and certified a Gold LEED building.

1993



**Veterinary Education Center**

The Veterinary Education Center opened for classes at the start of fall 1993. It includes two large lecture halls, a computer teaching “dry” laboratory, the College library, and a two-story public atrium.

2007



**East Campus Research Facility** The East Campus Research Facility, a University-wide animal facility, arose in 2007. College veterinarians and biomedical scientists comprise a substantial contingent of users, yet their collaborations with other Cornell faculty in Ithaca and at Weill-Cornell Medical College in New York City make this a building for all of Cornell’s life sciences.

2012



**Teaching Dairy Barn** Cornell’s Teaching Dairy Barn opened in 2012 as a state-of-the-art facility, featuring a main dairy barn, special needs barn, milking parlor, classroom/observation room, and material and equipment storage building. It serves the instructional needs of Cornell’s College of Veterinary Medicine and College of Agriculture and Life Sciences.

The site is ultimately expected to become the Large Animal Teaching Complex to include a livestock pavilion, additional teaching barns, an equine metabolism unit, and a large animal research and teaching unit.

2015

**FUTURE CAMPUS**



In January 2015 the College embarked on a major transformational capital project to conclude in 2017. Plans call for replacing James Law Auditorium with a three-story building that will house the

**OFF CAMPUS & OUTSIDE ITHACA**

1996



**Veterinary Medical Center and Hospital for Animals**

Construction of the 287,000 square foot Veterinary Medical Center began in 1992 and was dedicated in 1996. Renamed in 2000, it houses the Cornell University Hospital for Animals (formerly Veterinary Medical Teaching Hospital) and four academic departments with research laboratories.

2014

**VETERINARY CAMPUS**



1950

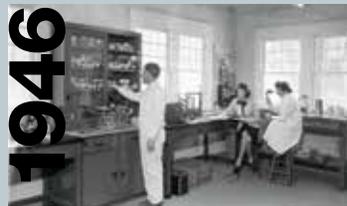
**Veterinary Experiment Station**

In 1908, the University purchased and donated to the College one hundred acres of former farm land on Snyder Hill to establish a veterinary experiment station. It later became the Veterinary Virus Research Institute (VVRI) in 1950 and was renamed the Baker Institute in 1975



Flower-Sprecher Veterinary Library, modular resource center, and administrative offices; two additional, large, tiered lecture halls; a relocated dining area that will more effectively support food service

needs and foster a greater sense of community; a multipurpose Atrium that will effectively support large gatherings; a larger gross anatomy lab; and many study spaces.



1946



1986

**AHDC-QMPS Satellite Laboratories in Canton, Geneseo, and Cobleskill** The Quality Milk Production Services, formerly known as the New York State Mastitis Control Program, was begun in 1946 by then Governor Thomas Dewey. Over the next 30 years it was operated out of the Veterinary College at Cornell. In 1975, it became a program of the Department of Agriculture and Markets. Until 1986, the Quality Milk Program was a part of the Department of Clinical Sciences in the Veterinary College. In 1986, Quality Milk came under the administrative umbrella of the Diagnostic Laboratory where it resides today.



1949

**Duck Research Laboratory** In 1949 the College's Duck Research Laboratory opened at Eastport, Long Island in cooperation with the International Duck Research Cooperative, Inc. as a national and international resource for information on duck disease control, good husbandry practices, and proper nutrition. It was the only U.S. production facility for USDA licensed vaccines for ducks. It continues today as part of the College's Animal Health Diagnostic Center.



2011

**Cornell University Veterinary Specialists** Cornell University Veterinary Specialists, the College's first satellite hospital, opened in Stamford, Conn., in 2011 as the largest and most comprehensive university-affiliated emergency and specialty referral center in the nation. Intensive care and 24/7 emergency and critical care services are combined with the latest medical and scientific advances.

1974



**Baker Institute and Feline Health Center** Professor James A. Baker (PhD '38, DVM '40) became the VRI's first director. A Cornell Laboratory for the Study of Diseases of Dogs was founded there years later and currently houses the Cornell Feline Health Center, founded in 1974



JAMES A. BAKER

A 40,000 square foot addition was added in 2006 to expand microbiology laboratories and a large auditorium. The VVRI was named the James A. Baker Institute for Animal Health in 1975 in honor of Baker.



1974

**Equine Park** Established in 1974, this park is located one mile from the main College on 165 acres of rolling farm land. Facilities are available to house approximately 150 horses in box stalls or paddocks and pastures with run-in sheds. A modern broodmare barn and adjacent stallion barn can accommodate 27 horses and include a breeding shed and complete laboratory for processing and handling semen.



2014

**Cornell Ruffian Equine Specialists** Located near the historic Belmont Park on Long Island, Cornell Ruffian Equine Specialists opened in 2014. It further extends the reach of the Cornell Equine Hospital, where internationally renowned specialists provide excellent specialty care in state-of-the-art facilities that promote the health and well-being of horses.



1975



# CHANGING FACES OF THE COLLEGE

By Carly Hodes



he student and faculty bodies at the College have evolved over the years into a richly diverse community encompassing a full spectrum of identities and

interests, from gender and ethnicity to experiential background and career passions. Though it has not always been a smooth road for all who dreamed of becoming veterinarians, the profession has expanded in scope and inclusivity, changes reflected in the College's evolving community.

The College's inaugural class graduated seven men in 1900. By 1910, Cornell had awarded the first American woman with a veterinary degree: Dr. Florence Kimball. Though the College continued to graduate small numbers of women, many obstacles hampered the admission of female aspiring veterinarians until in the early 1970s. Today, the gender composition in the College's classes has skewed female for many years, and the percentage of underrepresented minorities in our student body is among the highest for veterinary colleges in the nation. Students enrolled in the Summer Leadership Program and the Biological and Biomedical Sciences PhD program at the College also come from all over the world.

The College's Diversity Committee has grown into a robust group that has facilitated diversity initiatives across the College, to the benefit of students, faculty, and staff. Recognizing that a diverse student body will benefit from a diverse faculty, the College actively recruits faculty who bring varying perspectives and life experiences. Faculty renewal efforts continue to shape a diverse community of educators. College faculty come from all over the world.

"As with our students, we seek faculty who can challenge conventional and restrictive thinking through committee work, collaborative scientific investigations, and by extending mutual respect," said Dr. Susan Fubini, associate dean for academic affairs.

Diversity in student and faculty career passions has also grown. Many early students and educators focused on equine and production animal medicine. Interests and expertise at Cornell expanded to include a wide array of animals, from horses and livestock to classic companions like cats and dogs to exotics and wildlife. As society's scientific advances grew so did scientific



Dr. Florence Kimball 1910, the first American woman with a veterinary degree.



Dr. Kirksey L. Curd 1912, the first African-American DVM graduate at Cornell, was one of six between 1910 and 1919.

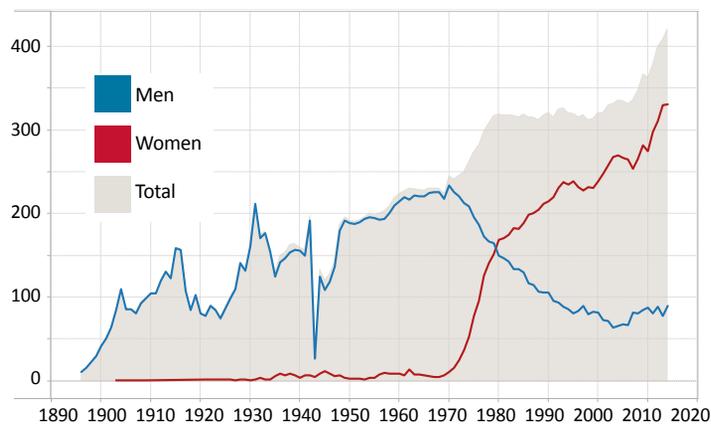
interests at the College, now including the full biological research spectrum from basic cell structures to specialized clinical sciences. Student learning opportunities have expanded in kind, offering chances to interact with different people through faculty-led international trips and the Expanding Horizons program.

In turn, the veterinary profession has changed from one primarily focused on large animal medicine to one that serves all species and facets of society from traditional medicine to biomedical research to public policy. The College's programming, research, and curricular offerings reflect this breadth and instill it in the veterinarians and scientists of the future.

*"Veterinary medicine is the perfect example of diversity, the roles in the profession are as diverse as the people who choose it."*  
—James Gaffney '16

In addition to practicing clinical medicine or conducting research, increasing numbers of our students are interested in public health, government or military service, or working for industry. They come from a variety of backgrounds and geographic locations and are engaged in communities on a local and international level. Students have established organizations that reach well beyond species-focused themes, including the Veterinary Education Club, the Dance Collective, the Veterinary Students as One In Culture and Ethnicity, shelter medicine, international development, and women's leadership.

"Veterinary medicine is the perfect example of diversity," said James Gaffney '16. "The roles in the profession are as diverse as the people who choose it."



Graph of male and female graduates: The Class of 1981 made demographic history as the first Cornell DVM class graduating more than 50 percent women.



“Along the way I had great mentors, advisors, and colleagues, and I have always felt that I stand on the shoulders and backs of slaves and civil rights workers who fought for people like me to get to this point.”

# People's instinctive travels and the paths to science

By Avery August

*Editor's note: In 2014 Avery August, PhD, professor and chair of microbiology & immunology at the College, won the prestigious E.E. Just award. Presented by the American Society of Cell Biology (ASCB) at their annual meeting to honor a pioneering African-American biologist, it recognizes outstanding scientific achievement by a minority scientist. The following is an excerpt from his award essay published in the ASCB journal Molecular Biology of the Cell.*

I was born in Belize, in Central America, to a teenage mother, with the accompanying “destined to fail statistics” that came with my circumstances. I grew up practicing science without realizing it, spending summers performing experiments. A few years after I was born, my mother decided that we could get better opportunities in the United States and migrated.

When I moved to Los Angeles the crack epidemic was just getting underway and my friends were involved in “the trade.” By the time I was leaving for graduate school, half had been shot, all had been to jail at least once, a few were dead. All were casualties of the war on drugs and the disparity in sentencing laws.

I earned my high school GED, my ticket to community college. At the time, I knew no one who had gone to college in the United States and had no guidance on the process. After two years I transferred to the California State University in Los Angeles, working a full-time job to pay for college, which soon started to take its toll. I started to reconsider going to medical school, because I was always more interested in the why and how.

Fortunately, my chemistry teacher suggested I try to get some research experience in a lab and go to graduate school. This was the first time I had ever heard of this option. I was eventually able to work in the laboratory of a researcher who opened my eyes to the idea that one can have a career in science and encouraged me to apply to graduate school.

I applied in the field of immunology and was accepted to the Graduate School of Medical Sciences at Cornell University in New York City. I wanted to attend Cornell because it was in New York City, where I didn't have to drive, thus losing the privilege of lying handcuffed on the sidewalk whenever the Los Angeles Police Department pulled me over for a simple traffic ticket.

At Cornell, I wasn't being mugged or shot at or harassed by police. However, I was scared to start there because my classmates were from all over the world, including Ivy League institutions; I was afraid that my preparation would fall short. However, I soon found out that I could hold my own and published successfully.



From left, Avery August meets in his lab with graduate student Kindra Stokes, research technician Amie Woods, graduate student Chavez Carter and research associate Weishan Huang.

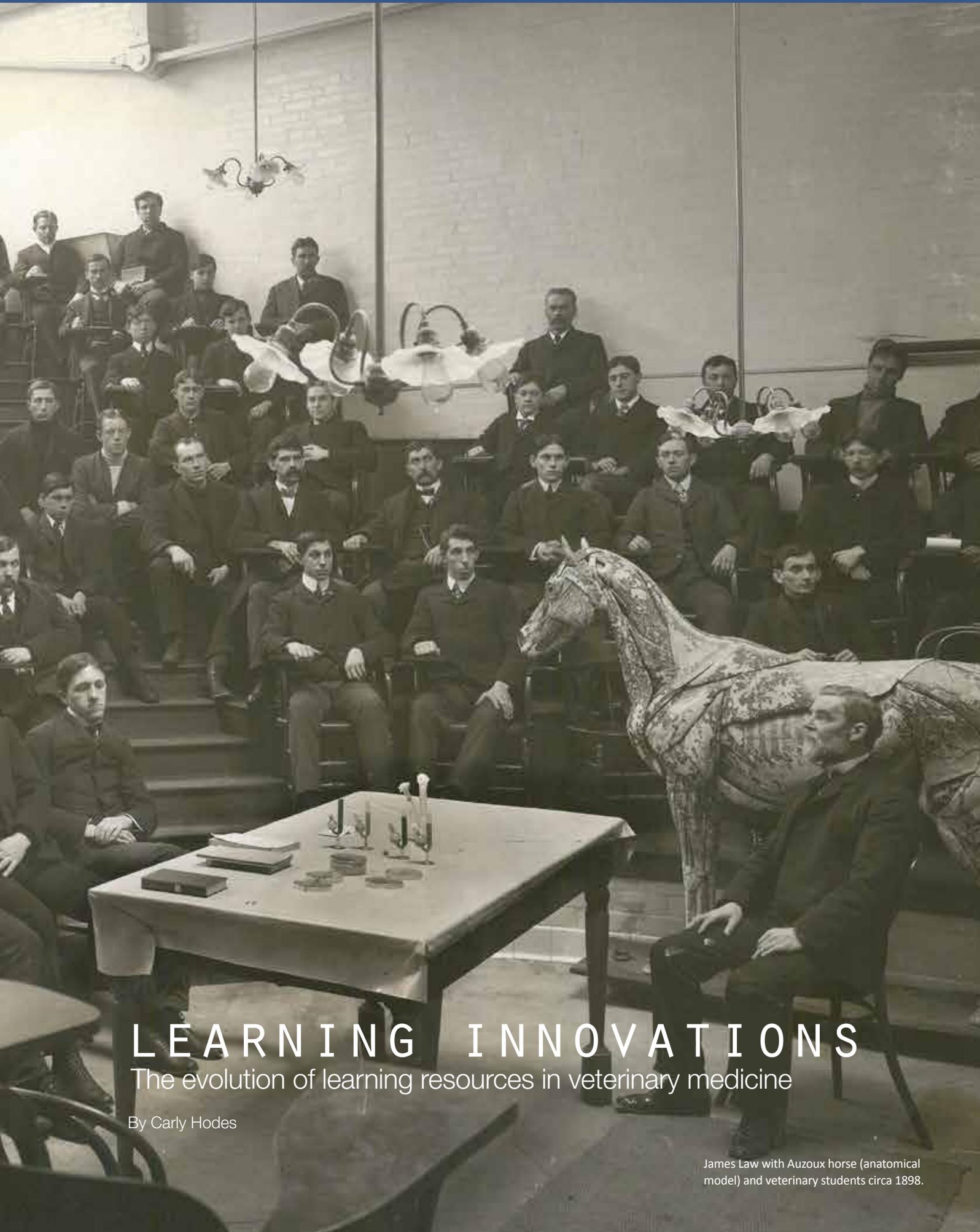
Following graduate school, I built my research career at several academic and corporate organizations until 2010, when I was recruited to my current position.

Along the way I had great mentors, advisors, and colleagues, and I have always felt that I stand on the shoulders and backs of slaves and civil rights workers who fought for people like me to get to this point. I have tried to pass support along, with service on study panels and mentoring groups, always being willing to answer questions and provide support and advice for all students, but particularly for underrepresented students. We have a long way to go.

We need more dedicated mentors from the highest ranks of science whose careers are dependent on the success of minority students. We need to train them on how to mentor minority students and use broader measures to judge minority applicants to graduate schools. We need to find out what worked for those successful minority scientists and replicate it. And we need to keep moving forward with hope to build on past successes.



Avery August with ASCB president Dr. Lippincott-Schwartz and Dr. Bertuzzi receiving the 2014 EE Just award.



# LEARNING INNOVATIONS

The evolution of learning resources in veterinary medicine

By Carly Hodes

James Law with Auzoux horse (anatomical model) and veterinary students circa 1898.

**Creative learning resources go a long way in helping students absorb a course of study as complex and varied as veterinary medicine. From the College's inception to its future plans, learning resources are evolving to match new innovations with old and new learning needs.**



### Specimens, models, and labs

Beyond examining Cornell's collection of dry and jarred specimens in the large museum that once dominated the first floor of James Law Hall in the 19th century, Cornell's earliest vet students had the rare chance to study from papier-mâché models of human and animal body

parts specially commissioned by Cornell's first president—including a 75 percent life-size model of a horse.

These models were revolutionary anatomic teaching aids in their day. Prior to the germ theory and before formaldehyde became widely used, students could die from an infected cut gotten while performing dissection of fresh carcasses. Following a booklet accompanying the models, which comprised as many as ninety-seven removable parts and sections representing nearly three thousand body parts that could be detached and re-assembled, students could simulate hands-on dissection without risking their lives.

Today, students safely examine specimens, conduct dissections on preserved cadavers, and explore electronic 3D anatomy models. They can also take advantage of many self-paced teaching modules 24/7 in the Modular Resource Center (MRC). This facility was established in 1993 in support of the newly implemented problem-based curriculum. Expert faculty carefully constructed each module to present specific concepts, from basic cell biology to specific species anatomy.

Each module might contain representative examples of anatomical structures, both actual and "plastinated," bones, radiographs, histological slides, and an interpretive script to hone in on key points quickly. Thus, students can observe and touch the items over and over until the material is mastered.

In addition to the Modular Resource Center, today's students often frequent both the computer ("dry") lab for computer modules and the "wet" for studying pathology, microbes, and parasites.



### Simulations and clinical skills

What started with the world's first robotic rescue dog for medical training is evolving into a new teaching paradigm in veterinary medicine. When Cornell bioengineer turned emergency specialist Dr. Daniel Fletcher invented a sophisticated programmable dog simulator in 2010, it planted the seed of a teaching revolution at the College, which opened its first simulation center in 2013. Fletcher has led development of new advanced pet simulators, helping to expand the simulation learning model throughout the College's curriculum and preparing tools for other institutions to follow suit.

Cornell's simulation center grants space dedicated exclusively to simulation-based learning, including two fully equipped

**"No other schools are using this kind of simulation yet, our model can enhance CPR scenarios and simulate a slew of other conditions, and we've seen interest in it growing."**

— Dr. Daniel Fletcher

exam rooms, two rooms for live video-feed observation and debriefing, and space for storage and developing new models like a robotic cat and a second more-advanced dog.

"Simulations like this have been used to teach human doctors for decades," said Fletcher. "The idea is to bridge preclinical lecture learning and actual clinical experience, letting students practice applying what they've learned in a safe setting before the stakes get high."

In simulations, a small student team enters the exam room, collects basic patient information from the robotic dog or cat, assesses, plans, and treats. They can use a full crash cart, medical supplies, defibrillator, and other tools to take the robo-pet's pulse, listen to heart and lung sounds, insert catheters, and hook up monitoring devices to get feedback orchestrated through Fletcher's software. Others watch in the observation room, then all meet in the debriefing theater to watch recordings and debrief.

Other institutions are eager to explore the new paradigm. Fletcher has brought his robo-dog to curious schools across the country and world. Fletcher and information-technology collaborators are creating a new simulation toolkit for veterinary education, including an open-source software platform with



collaborative online learning environment, faculty development to facilitate use of technology to enhance learning, and centralization of educational technology resources.

### The Flower-Sprecher Veterinary Library

Since its establishment in 1897 Cornell's Flower-Sprecher Veterinary Library has amassed thousands of volumes, journal subscriptions, and audiovisual materials in an airy, sunlit expanse with beautiful furnishings and curious botanical specimens from Cornell's Muenscher Poisonous Plants Garden. The oldest veterinary library in the United States, it continues to play a prominent role in student life and faculty research as it evolves to meet changing learning needs.

### “The simulation center is part of a greater plan to form a clinical skills complex: a self-paced multi-station lab open 24/7.”

affordable hardware that can be shared with other institutions interested in introducing simulation teaching.

“No other schools are using this kind of simulation yet,” said Fletcher. “Our model can enhance CPR scenarios and simulate a slew of other conditions, and we’ve seen interest in it growing.

We’re gathering evidence and tools to help bring the simulation capability and teaching model outside Cornell.”

The simulation center is part of a greater plan to form a clinical skills complex: a self-paced multi-station lab open 24/7. Students will have access to direct hands-on practice with basic skills like suturing on skin models or putting catheters into fake limbs before labs or clinics.

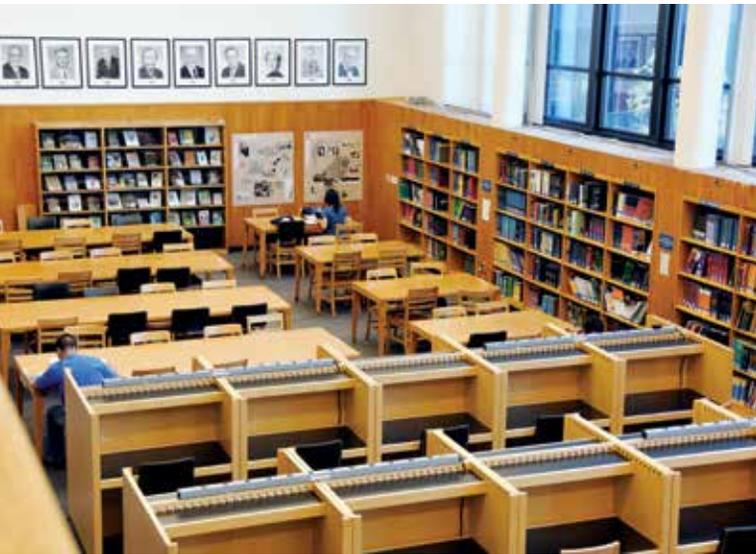
### Educational Technology Task Force

In addition to the capital investments being made in facilities, the College has committed to making evolving educational technology resources accessible and sustainable in order to keep us current with peers and to provide our graduates with tools that encourage lifelong learning.

To this end, the Dean has formed an Educational Technology committee to design and oversee a future educational technology infrastructure. The committee will: develop a process for identifying and evaluating new or specific technologies (e.g., on-line learning, 3-D printing), educate college constituents on existing content, tools and resources, define needed resources, formulate best practices and policies governing creation and use of on-line tools and content, acquire input on curricular and course management resources, and develop a faculty engagement program.

The committee will focus on four key priorities initially: conversion of text-based curricular content and tools to interactive and accessible digital formats, developing an integrated,





As construction for the Class Expansion Project reshapes the College over the next five years, the library will continue its essential services. Upon completion, the library will be prominently visible from the College's main entrance through spacious glass windows. Study rooms will extend to areas adjoining the library, and the Modular Resource Center will move in, located on the library's second floor for seamless studying. Students will have 24/7 access to the new facilities.

"The library has always been a focal point of learning at the College and will remain as vibrant as ever in its new location," said library director Erla Heyns. "The way the library fills this role and offers resources is evolving—so much is online and often the library goes straight to people's own desktops. Library staff now provide services to users in the library and visit researchers in their offices."



By Carly Hodes



Dr. Myron G. Fincher around 1945. Dr. Fincher took over ambulatory and the medicine department when Dr. Udall retired in 1942.

# GIVING BACK through the eras

Service has been part of the College's mission as a land grant institution from the start. Outreach at the College began with providing clinical service to nearby farms, expanded toward disease diagnostics and prevention, and has grown to include many programs serving a variety of needs for businesses, large animals, people, and pets across many communities.

## Farm outreach

From the beginning, Dr. James Law took students on farm calls, while Dr. Walter Williams set up the country's first ambulatory service at Cornell, which exists to this day. Faculty bring students on calls through the Ambulatory and Production Medicine Clinic to provide routine and emergency veterinary service on farms within 30 miles of Ithaca, New York. This includes care of individual cattle, horses, small ruminants, camelids, and swine as well as implementation of production medicine programs in local herds.



Dr. Walter Williams set up the country's first ambulatory service at Cornell.



The Farmer's Veterinary Adviser by Dr. James Law, published in 1876 to serve farmers "beyond the reach of the accomplished veterinarian," was so useful and popular that 15 editions were published.



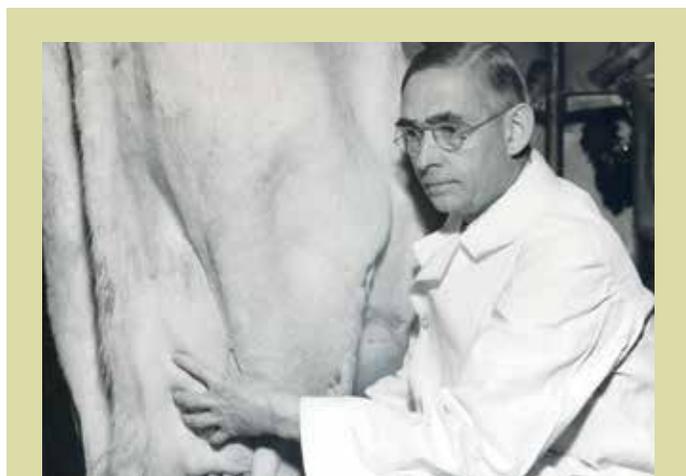
Dr. Walter J. Gibbons taken by Dr. Andre Moul Ross, around 1940. Gibbons was an ambulatory clinician for over 20 years from the time he graduated in 1925 until about 1946.



Ambulatory 1955 showing Dr. Myron G. Fincher with students



Neil C. Rejman, Dr. Daryl Nydam (DVM '97, PhD '02), Dr. Chuck Guard at Sunnyside Farms, 2012



Dr. Denny H. Udall with cow, around 1930

“As late as 1908, when I called upon President Schurman with Dean Moore, he forecast the possibility that the automobile might sometime be used in the College clinics. This was about the time that the ambulatory clinic was established, when students rode to the farms in a three-seated wagon handled by a pair of horses. This change is especially appreciated by those who have driven a horse 24 miles through the mud or snow to treat a single animal, and much of whose time was spent in that manner when the days were long and the nights dark.”

*In expressing gratitude for 40 years of service, Dr. Denny H. Udall remarked at his retirement dinner in January 1942*

The College's Quality Milk Production Services was begun in 1946 by then Governor Thomas Dewey, built upon what was formerly known as the New York State Mastitis Control Program a mastitis research program initiated by Drs. D.H. Udall 1901 and Seth D. Johnson in the 1930s. Over the next 30 years it was operated out of the College, becoming a program of the Department of Agriculture and Markets.

Until 1986, the Quality Milk Program was a part of the Department of Clinical Sciences in the Veterinary College.

In 1986, Quality Milk came under the administrative umbrella of the Diagnostic Laboratory where it resides today. Initially focused on diagnostics, the program has developed into comprehensive extension education designed to offer assistance to all dairies in the state.

### Diagnostic services

In 1912 the College's Pathology and Bacteriology Department began operating a “diagnosis Laboratory,” one of the first of its kind in the nation. By the late 1970's the New York State Legislature had enacted laws that authorized the Commissioner of Agriculture to contract operation of a veterinary diagnostic laboratory at Cornell University. In 2010, a new multi-story New York State Veterinary Diagnostic Laboratory building, known as the Animal Health Diagnostic Center (AHDC), was completed.

It pursues the following activities, as outlined by state law:

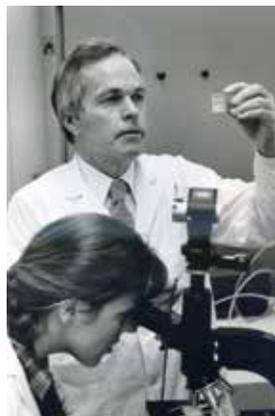
- Evaluate domestic and wild animal populations for evidence of disease agents that may cause human disease
- Maintain capability to respond to disease outbreaks in animals
- Establish diagnostic testing capabilities to establish herd health status and evaluation of disease programs
- Support disease surveillance and monitoring programs of domestic, zoo and wild animals
- Support veterinarians by analyzing and interpreting samples obtained from clinical cases
- Evaluate, adjust, and improve New York's ability to recognize diseases that impact animal populations

In the future, the AHDC will be readying itself to meet new challenges as both diseases and technology continue to evolve.

“There are many testing labs out there, and one of our big future challenges will be building added value beyond testing—things like our Veterinary Support Services, which employ veterinarians to provide consultations with veterinarians and assistance to producers in testing strategies, result interpretation, and disease control,” said Ed Dubovi, PhD, interim director of the AHDC. “Technology we use in communicating with clients is changing rapidly, as are testing methods, from traditional agent testing to molecular testing. As technology advances more clinics will do their own testing, and traditional tests we do inside may move to the field.”



Old lab with Dr. Samuel H. Burnett, 1900. Dr. Burnett was appointed as assistant professor of pathology and bacteriology in 1909 to 1928, the period when the diagnostic lab was established in that department.



Dr. Neil Norcross who worked on the mastitis program

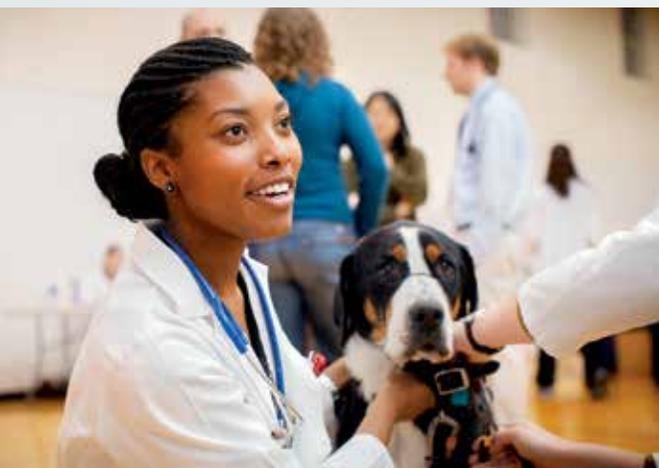


Dr. Wes Lindquist who worked on the mastitis program, 1976

## Pet and community outreach

The College now hosts many programs and initiatives engaging broad pet-owning communities. Below are a few highlights.

- Established in 2005, **Partners in Animal Health** provides a freely accessible collection of innovative, reliable resources for veterinarians and pet owners developed by veterinary experts at the College.
- In 2005 the College launched **Maddie's® Shelter Medicine Program** at Cornell to educate veterinarians and veterinary students in shelter medicine, provide outreach to animal shelters, and advance the new discipline through new discoveries. The program provides direct medical and behavioral care for homeless animals while training a new generation of veterinarians and shelter staff to address the challenges of keeping shelter animals physically and emotionally healthy.
- Cornell's **Pet Loss Support Hotline** is staffed by volunteer veterinary students who have undergone extensive training with professional grief counselors. **Cornell Companions**, a pet visitation program sponsored by the College, brings volunteers and their pets to visit children with disabilities, nursing home residents, and hospital patients.
- The digital **CONSULTANT** website provides a freely available diagnostic support system.
- The College's **Southside Clinic** has been running at Ithaca's Southside Community Center since 1996, allowing early veterinary students to hone skills that are used during typical wellness visits under supervision to perform wellness visits on pets that may not otherwise have access to veterinary care, and has launched many traveling clinics in communities across New York State.
- Founded in 1974 by Dr. Fred Scott, the **Cornell Feline Health Center** was the first center dedicated solely to the improvement of feline health and well-being. In addition to supporting basic and clinical research, the center has a proud history of disseminating vital information and providing support to veterinary health professionals and cat lovers, supporting the education of tomorrow's top-notch veterinarians and researchers, and responding to emergent health issues that affect cats worldwide.



Southside Clinic



Maddie's® Shelter Medicine Program



Howard Evans, professor emeritus of veterinary biomedical sciences, BS '44, PhD '50, teaching students at Northeast Elementary about reptiles.

# Equine advances through the eras

By Carly Hodes



Legend has it that when Andrew D. White, the University's first president was about to embark on a journey to recruit faculty for Cornell, Ezra Cornell called out: **“Don't forget the horse doctor,”** another term for early veterinarians. White recruited Dr. James Law, who became the first professor of veterinary medicine and surgery at an American university in 1868.

Cornell never did forget the horse doctor. From early to modern research—including many projects funded by the Harry M. Zweig Memorial Fund for equine research since its founding in 1979—to practice, including farrier work and modern clinics, the below sampling shows a few of the ways in which the College's equine accomplishments have made a difference in horses' lives.



### Breeding and genomics

Modern immunological research on equine pregnancy by Cornell's Dr. Douglas F. Antczak led to the first successful transplantation of horse embryos into mules and has opened new doors for horse breeding. In 1984 two Thoroughbreds and one donkey were born at Cornell to three mule surrogate mothers who had received transplanted embryos. Twenty-five years of studies by Antczak and colleagues have advanced our understanding of how mother, fetus, and placenta communicate and compromise during pregnancy to bring about birth.



Twilight

Beginning in 1995, Cornell researchers from Antczak's laboratory collaborated with an international consortium of over 20 laboratories on the Horse Genome Project. Twilight, a Thoroughbred mare selected from the Baker Institute's experimental herd, served as DNA donor for the equine genome sequence project. The whole genome sequence of the domestic horse was successfully decoded in 2009 and will enable significant advances in

equine medicine from studying simple genetic traits to complex multi-gene conditions. Also revealing remarkable genomic structure similarities with humans, the horse gene sequences are potentially useful in studying the numerous equine hereditary diseases common to both horses and humans.



## Equine airways

Dr. Walter L. Williams was appointed Professor of Veterinary Surgery, Obstetrics, Zootechnics, and Jurisprudence in 1896 as one of the original six College faculty members. He was one of the first to utilize a new surgical procedure for the relief of recurrent laryngeal paralysis, commonly known as “roaring,” in horses.

Nearly 100 years later, ongoing research by Cornell veterinarians has enabled important advancements in treating equine airway disorders. First used experimentally in 2002, a surgical laryngeal “tie forward” procedure (LTFP) was developed by Cornell surgery professor Dr. Normande Ducharme and his colleagues for treating dorsal displacement of the soft palate. With strong evidence of effectiveness, it quickly became used internationally for correcting airway disorders in horses.

Together with Dr. Richard P. Hackett, Ducharme perfected a special halter known as the Cornell Halter or Cornell Collar. By improving the position of the larynx, this device enhances performance of race horses diagnosed with upper airway problems.

Cornell’s animal hospital now uses trans-esophageal ultrasound, a technique developed by Drs. Jon Cheetham, Marta Cercone, and Norm Ducharme to evaluate the geometry of horses’ airway muscles during rest and exercise. This allows clinicians to find roaring in young horses early, giving them a chance to recover. Cheetham’s current work focuses on improving the nerve graft, a technique that takes a healthy nerve from neck muscles and puts it onto a damaged nerve to stimulate neglected muscles, help recovery, and expand healing options in horses suffering from roaring.



## Farriery

In 1896 veterinary students were required to take a course in “Veterinary Pedal Surgery and Horse-Shoeing.” The College constructed a farrier shop three stories high fully equipped for teaching horseshoeing in 1913. Soon after the College launched its department and school of horseshoeing and offered the first short course for horseshoers in the state every two months. To lead this work Cornell hired its first farrier, Henry Asmus, as an assistant professor of horseshoeing who championed the field, lecturing and publishing across the country. He trained everyone from students to professionals, including 120 soldiers in WWI.

The College moved its location and has since renovated a new Farrier Shop. This is now the home of two yearly courses in farriery: the 16-week General Farrier Short Course and the one-week Advanced Farrier Course. Cornell also established an annual Farrier Conference held on campus each November, which celebrated its 30th anniversary in 2014 together with the 100th anniversary of the Farrier School. This program has served numerous students, horse owners, veterinarians, and others, furthering farrier knowledge and skill that ultimately helps horses near and far.

## Cornell clinics

The Cornell University Equine Hospital provides emergency care, diagnostic procedures, treatment, hospitalization, and 24/7 emergency and critical care. Routine and specialized health care services are also available, including internal medicine, orthopedic surgery, soft tissue surgery, customized farrier services, ophthalmology, dentistry, reproduction medicine, cardiology, dermatology, and nutrition consultation. The hospital includes the Equine Performance Clinic equipped with a treadmill. Services are supported by up-to-date diagnostic procedures and treatments.

Opened in early 2014 near historic Belmont Park in Elmont, N.Y., Cornell Ruffian Equine Specialists further extends the reach of the Cornell Equine Hospital. It is within walking distance of Belmont Park, recognized as one of the world’s premiere Thoroughbred horse-racing facilities, and is easily accessible to the many sport horse enthusiasts located in and around the area. The 22,000 square-foot facility provides state-of-the-art surgical, imaging, diagnostic, and laboratory services to enhance equine health.





Dedication of The Baker Institute for Animal Health: Leland Carmichael, DVM, PhD '59, James A. Baker, DVM, and Hadley Stephenson, DVM, mid 1950's.

## The Baker Institute: Early accomplishments, bright future

**How the Baker Institute for Animal Health evolved from a small group of scientists studying viruses into a world leader in animal health research**

By Merry Riley Buckley



The Baker Institute for Animal Health, 2006

**A**top Snyder Hill just outside the main Cornell campus, the Baker Institute for Animal Health was born the Veterinary Virus Research Institute in September 1950.

Since those early successful days as a research facility focused on animal viruses, the Institute has branched out to include other disciplines, and by aligning those efforts in cooperation and collaboration under one roof, the Institute now stands as a leading center for basic and applied research for the benefit of animal health. Past breakthroughs at the Institute, including the study of canine distemper and canine parvovirus and their vaccines, genetic tests for hip dysplasia, and reproductive technologies that can help endangered species, have benefitted millions of animals. With the hiring of new faculty members and the expansion into new fields of study, the Institute's future looks even brighter than its past.

Professor Emeritus Leland (Skip) Carmichael, DVM, PhD '59, says founding director Dr. James Baker established the Institute as a force to be reckoned with in virology, a subject that received little attention in veterinary schools at the time. "He built the concept of the Institute as a center for veterinary research," says Carmichael, himself a former acting director of the Institute.

Early work at the Institute adhered to the virology focus, addressing diseases of cattle and pigs. However, it was Baker's work with canine diseases that met with the Institute's greatest success at the time, including the first experimental vaccine for canine infectious hepatitis (1952) and a combined vaccine for canine hepatitis and distemper (1956), the first dual-virus vaccine for dogs.

The distemper and canine hepatitis vaccines and other achievements spurred growth at the Institute, and Baker soon expanded its research profile to other kinds of problems in animal health. The Institute launched a program to study canine hip dysplasia in the 1960s as well as projects in immunology against parasites in the 1970s. The 1970s also saw the Institute shift from strictly clinical investigations directed at solving a particular problem to conducting some basic science investigations, systematic studies that seek greater knowledge or understanding of

animal health. Current Institute director, Colin Parrish, PhD, says the transition was partly due to emerging new technologies that made basic research on animal health possible.

"The Institute was always at the forefront of the science as it was being done at the time," says Parrish. "If you go back and look at the publications from the 50s and 60s, they were working at the scientific cutting edge at the time."

Parrish points to technologies such as monoclonal antibodies, electron microscopy, ELISA tests, and many genetic techniques, which were not available in the early days of the Institute, but in the 1970s and 80s Baker scientists used them to develop the vaccine for canine parvovirus, to identify early arthritic problems in dogs, and to assist reproduction in horses. "New opportunities are presented by new technologies. Since its founding the Institute has been driven by the technologies that were available at the time – that was true then as it is now," says Parrish.

**Past breakthroughs at the Institute, including the study of canine distemper and canine parvovirus and their vaccines, genetic tests for hip dysplasia, and reproductive technologies that can help endangered species, have benefitted millions of animals.**

Today, new faculty hired in the past two years, including Gerlinde Van de Walle, DVM, PhD, Charles Danko, PhD, and Elia Tait Wojno, PhD, are all bringing experience with modern techniques to bear on diseases like canine herpesvirus, canine heart disease, and mammary cancer.

"They're bringing vibrancy and new skills, but their skills also complement our existing programs and strengths. They're collaborating with other faculty in the Institute, outside the Institute, and outside the University," says Parrish.

"With the new faculty in place Baker boasts a lineup of virologists, immunologists, geneticists, bioinformaticists, and cancer researchers, many of them with veterinary degrees. With faculty strengths in these various fields, the Institute is well

positioned to take advantage of new opportunities," says Parrish. Just as new scientific technologies in the 50s, 60, 70s, 80s, and 90s enabled Baker scientists to make breakthroughs that helped animals, they will apply new approaches like bioinformatics, whole genome sequencing, and stem cell technologies to help propel discoveries at the Institute in the new millennium.

"The future is bright for the Institute," says Parrish. "And for the dogs, cats, horses, and other animals we work hard every day to help."



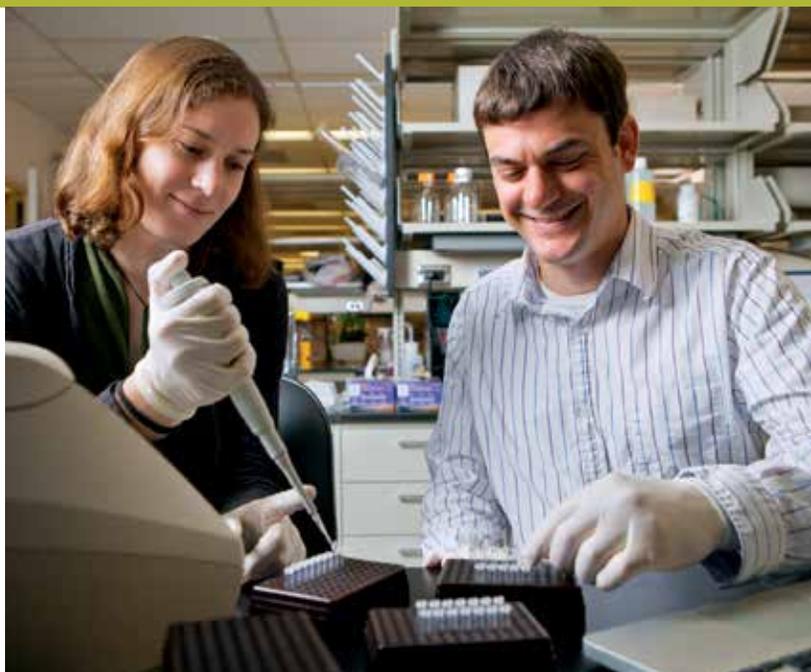
The Baker Institute for Animal Health, 1979

# Generations of canine health pioneers: helping dogs then and now





Professor Emeritus Leland (Skip) Carmichael, at right, 1979



Adam Boyko, assistant professor of biomedical sciences at the College of Veterinary Medicine, in the laboratory with a post-doctoral associate.

## Leland (Skip) Carmichael

Professor Emeritus Leland (Skip) Carmichael, DVM, PhD '59, spent his long career at Cornell University improving the lives of dogs. Since Carmichael first came to Ithaca in 1956 to pursue his PhD at the Laboratory for the Diseases of Dogs, the laboratory has become the Baker Institute for Animal Health, and Carmichael eventually became a full professor, but one thing stayed the same: Carmichael remained focused on identifying, treating, and preventing canine infectious diseases. During his time at Cornell he accumulated a long list of breakthroughs that helped dogs all over the world, including playing a lead role in developing the parvovirus vaccine that curbed a global pandemic.

Carmichael recalls that he was on vacation with his family on Cape Cod in the summer of 1978 when the parvovirus outbreak first made headlines. His colleague Max Appel, DVM, PhD, called him back to work on the catastrophe. Within three years, Carmichael had perfected the modified live-virus vaccine for parvovirus that is still in use today.

During his time at the Institute, Carmichael also made great inroads against canine brucellosis. When the disease began appearing among beagles in 1966, he and his colleagues were the first to describe the disease and identify the bacterium responsible, work that eventually helped identify control measures for that infection. In addition to brucellosis, Carmichael also worked extensively on canine adenoviruses types 1 and 2 and canine herpesvirus, all diseases that are much less prevalent now, thanks in part to Carmichael's efforts.

Carmichael says his career studying emerging infectious diseases in dogs was energizing for him because something new was always around the corner. "The joy of discovery is the 'wow', the moment when you find something you didn't expect. The causes of most of the recognized diseases out there seem to have been identified, but they keep coming up because life is predicated on change," he says.

**"The joy of discovery is the 'wow', the moment when you find something you didn't expect."**  
—Skip Carmichael

## Adam Boyko

In 2011, 55 years after Carmichael came to the College of Veterinary Medicine, Adam Boyko, PhD, joined the ranks of the faculty and embarked on his own studies of dogs, but whereas Carmichael set about problem-solving, Boyko is exploring. By comparing the genome sequences he has collected from dogs from all over the world, Boyko is looking for clues about dog evolutionary history and the ways these animals have adapted to life in different circumstances.

Using blood samples from village dogs in such far-flung places as Polynesia, South America, and Africa, Boyko is surveying differences among the genes to figure out where in the world dogs originally came from and what humans selected them to do when they were first domesticated. Village dogs live on the fringes of human life, where they coexist with people but do not receive veterinary care and are not bred for traits that humans might prefer. Because they're not actively bred by humans today, Boyko says, he expects that their genes carry many of the ancient traits of the first domesticated dogs. Boyko is also trying to figure out whether animals in Polynesia, Africa, or South America are specifically adapted to life in those locations and which genes enable these adaptations.

Another project in Boyko's lab could lead the way to better health in dogs and humans. Boyko says he is planning to conduct a longitudinal study of dog longevity, in which he will track the health of participating dogs over many years and explore the factors that determine how long a dog lives. "We're looking to use dogs as a model for healthy aging," says Boyko. "We know a lot of the aging rate is determined by body size, but we need to tease apart the genetics a bit further." Knowing the genes that effect how long a dog lives could translate nicely into a better understanding of human longevity, he says.

1868



**Dr. James Law appointed first professor of veterinary medicine**

Scottish veterinarian Dr. James Law became the first university professor of veterinary medicine in the United States following Ezra Cornell's search for a veterinarian for the first faculty. Law became the new veterinary college's first director and dean from 1894 to 1908. He was one of the great pioneers of American veterinary medicine.

1876



**Dr. Daniel Salmon earns first DVM degree in America**

In spring of 1871 the University faculty approved the granting of two veterinary degrees: a bachelor of veterinary science (B.V.M.) degree after four years of study and a doctor of veterinary medicine degree (DVM) after an additional two years. Having received the second B.V.M. degree granted by the University two years earlier in 1872, Salmon received the first DVM in the United States in 1876.

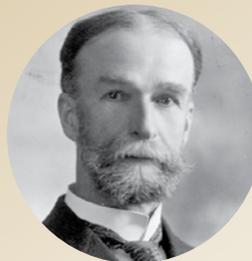
1891



Drs. Fred Kilborne and Maurice C. Hall

**Discovery of the transmission of disease by arthropod vectors**

Cornell graduates Drs. Theobald Smith, Fred Kilborne, and Cooper Curtice at the U.S. Bureau of Animal Industry discovered the basis of Texas Fever in cattle and first reported the transmission of a disease through arthropod vectors to mammals.



Dr. Theobald Smith

1894



Jacob Gould Schurman

**Veterinary College chartered**

While veterinary medicine had been taught at Cornell under Dr. James Law since the University opened, the program became the New York State College of Veterinary Medicine in 1894, the first state-supported college at Cornell thanks to persuasive lobbying from Cornell University's third president, Jacob Gould Schurman.

MOMENTS AND MILESTONES

TEACHING, SERVICE

1912



**Veterinary Diagnostic Laboratory established**

A veterinary "diagnosis laboratory" was established by the Pathology and Bacteriology Department in 1912, one of the first of its kind in the nation. It became the state laboratory for animal health in 1966 under a contract with the New York State Department of Agriculture and Markets.

1946



**Bovine virus discovered**

Clinicians and scientists at Cornell University reported an outbreak of an apparently new, transmissible disease in cattle, marking the discovery of bovine viral diarrhea virus.

1950 & 1952

**Veterinary Virus Research Institute & James A. Baker Institute founded**

The Veterinary Virus Research Institute was created in 1950 at a time when the study of viruses received very little attention in veterinary schools. The Institute made major contributions in its first two decades to the control of diseases of livestock, especially bovine and swine diseases. After the Cornell Research Laboratory for Diseases of Dogs was added in 1952, it paved the way for significant research into virus diseases and vaccine development for dogs. The Institute was renamed the James A. Baker Institute for Animal Health after the death of its founder and director in 1975.



James A. Baker, DVM '40, PhD '38

1908



Dr. Walter Long Williams

**First veterinary ambulatory clinic in the country was established**

The first veterinary ambulatory clinic in the country was established by Cornell Professor Walter L. Williams with later help from Dr. James N. Frost. The difficulties involved in establishing this clinic, such as the use of horse-drawn vehicles and trains and developing farmers' confidence, made this experiment in clinical teaching an important achievement in veterinary education.

1910



**First woman DVM graduate**

Cornell's DVM class of 1910 included Dr. Florence Kimball, the first woman to receive a DVM in the United States.

Dr. Florence Kimball '10, the first American woman with a veterinary degree and one of 34 female Cornell DVM graduates before 1950.



# E, AND DISCOVERY

## THROUGH THE ERAS

1960

**Vaccine program for canine distemper**

Researchers at the College's Baker Institute developed a national program for immunizing young dogs for distemper and canine infectious hepatitis using a combined vaccine first developed at the Institute.



1970

**Coggins Test**

A reliable test for diagnosing equine infectious anemia, known as the Coggins test, was developed by Dr. Leroy Coggins and colleagues in the early 1970s. It remains a required standard test for horses entered in sporting events and for transporting horses across state lines.



1974

**Cornell Feline Health Center established**

Cornell Trustees approved the establishment of the Cornell Feline Research Laboratory, later renamed the Cornell Feline Health Center. It continues to focus on research related to feline infectious diseases, especially on viruses affecting cats. In 1988, the Dr. Louis J. Camuti Memorial Feline Consultation and Diagnostic Service (1-800-KITTY-DR) was established, the nation's first expert feline consultation



Fred Scott DVM '62, PhD '68 established the internationally known Cornell Feline Health Center

# 1974

## First practical test for diagnosis of canine brucellosis

Canine brucellosis is an important cause of reproductive failure in dogs caused by the bacterium *Brucella canis*, an organism that was first isolated and characterized at the Baker Institute in 1966. Cornell scientists later developed the first practical test for the diagnosis of canine brucellosis in 1974.

# 1978



Dr. Karel A. "Ton" Schat

## Vaccine strain of major poultry disease isolated

An avian virology professor isolated the SB-1 vaccine strain of Marek's disease from a flock of Cornell birds and used it to develop the SB-1 vaccine for Marek's disease. The widespread vaccine continues to prevent disease in countless chickens, ensuring the health of poultry and its consumers across the globe.

# 1979



Dr. Leland E. Carmichael

## First vaccines for canine parvovirus-type 2

Canine parvovirus, or "parvo," emerged in the United States, Europe, and Australia in 1978, causing a near-global outbreak among dogs. Baker Institute scientists first isolated the virus later that same year, and by 1979 had developed the first vaccine for parvo. By 1981, Baker Institute scientists had created an improved attenuated vaccine for the disease.

# 1984



A female mule with her unrelated surrogate offspring, a foal.

## First successful transplantation of horse embryos into mules

The birth of foals from mule surrogate mothers at Cornell demonstrated that female mules, although infertile, can ovulate and cycle regularly. This work has opened new doors for horse breeding.

# 1988

## Muscular dystrophy discovery

Genetic basis of canine muscular dystrophy discovered and established as equivalent to human Duchenne muscular dystrophy.

# 2004



Computer with a DNA microarray

## Center for Vertebrate Genomics

The University-wide Center for Vertebrate Genomics fosters interaction amongst vertebrate geneticists across the campus, assists in recruitment of outstanding scientists, supports training and resource sharing, and enables technologies relevant to modern genomics research.

# 2005

## Shelter medicine program launched

With support from Maddie's Fund, Cornell's Shelter Medicine Program was launched to educate veterinarians and veterinary students in shelter medicine, to provide medical and behavioral outreach to animal shelters, and to advance the new discipline through the discovery of new knowledge. It is one of only a handful of comprehensive shelter medical programs at veterinary colleges in the United States.



# 2006

## Cornell horse serves as genome donor

Twilight, a research mare bred and raised at Cornell, was selected as the donor horse for the international Equine Whole Genome Sequencing Project. After nearly 10 years of work, the mare's 2.7 billion base-pair genome was fully sequenced in 2006 and has since served as a resource for genomics investigations around the world.



Twilight

# 1993

## Problem-based DVM curriculum implemented

After years of planning, the four-year DVM curriculum was revised in the 1993-94 academic year to include case studies in problem-based learning. This methodology provided more flexibility for students and faculty, improved integration of clinical sciences with the basic sciences early in the course of study, and facilitated individual initiative and greater responsibility by the student in the learning process. College staff and faculty continue to share insights from this innovative curricular model with other veterinary schools nationwide.



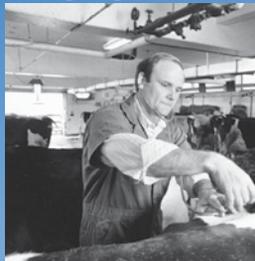
# 1997



## Researchers publish linkage map of canine genome

Researchers at the College of Veterinary Medicine's Baker Institute and the Fred Hutchinson Cancer Research Center published the first linkage map of the canine genome in the journal *Genomics*. The map became a resource for mapping canine traits of interest and served as a foundation for development of a comprehensive canine genetic map.

# 1997



## CONSULTANT launched

CONSULTANT, a diagnostic support system for veterinary medicine, was provided as a free, online resource to veterinarians worldwide by Dr. Maurice E. "Pete" White. It remains a frequently accessed diagnostic database for animal diseases.

# 2001



## First gene therapy to restore sight in congenitally blind dog

Using a virus designed specifically to carry a working copy of a mutated gene, scientists treated dogs affected by the disorder and restored their sight. The method offers hope and gene therapy tools for treating a similar disorder in children.

# 2002



Dr. Norm G. Ducharme (left)

## Cornell halter and laryngeal tie forward procedure developed

First used experimentally in 2002, a surgical laryngeal tie forward procedure was developed by Cornell equine clinicians for treating dorsal displacement of the soft palate. Their work also led to the development of the Cornell Halter which improves airway efficiency in horses, especially when they are racing.

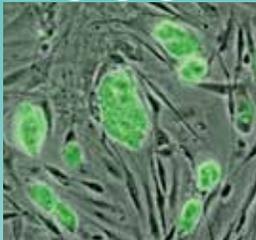
# 2006

## Cornell Veterinary BioBank established

The Cornell Veterinary BioBank was established as a repository of DNA samples and pertinent medical information. Its purpose is to aid genetic investigation and treatment of inherited diseases of animals. The Bank consists of the largest collection of phenotyped and genotyped canine samples. Loci linked to canine hip dysplasia identified establishing a genetic screening capability to reduce incidence.



# 2009



## Stem Cell Program

Cornell's Stem Cell Program became part of a consortium entitled, "Stem Cells, Microenvironment and Cancer" with the Roswell Park Cancer Institute (RPCI), Yale Stem Cell Center, and Eli and Edythe Broad Center for Regenerative and Stem Cell Research at the University of Southern California. Its purpose is to foster cross-disciplinary collaborations for basic and comparative biomedical science programs campus-wide.

# 2009

## Cornell-Hong Kong University Partnership initiated

A partnership between Cornell and the City University of Hong Kong was initiated to establish the first school of veterinary medicine in Hong Kong.



# 2010

## Robotic dog developed

A robotic dog model is developed by a Cornell emergency clinician to teach emergency medicine procedures, such as CPR, to veterinary students, practitioners, and technicians.



Dr. Daniel J. Fletcher (right) with Robo Jerry, the robotic dog.

# 2011



Dr. Bettina Wagner

## Improved Lyme disease test developed

Early detection of Lyme disease in horses can significantly improve chances for full recovery and reduce complications. A Cornell researcher led development of a new multiplex Lyme disease assay that is more accurate in detecting not only three different antibodies to *B. burgdorferi*, but in distinguishing between infection and vaccination and between early and chronic infection stages.

# 2011



## Cornell University Veterinary Specialists opens

Cornell University Veterinary Specialists, the College's first satellite hospital, opened in Stamford, Conn. in 2011 as the largest and most comprehensive university-affiliated emergency and specialty referral center in the nation. Intensive care and 24/7 emergency and critical care services are combined with the latest medical and scientific advances

# 2012

## Salmonella Dublin antibody test

Scientists at Cornell's Animal Health Diagnostic Center developed and offered the country's first antibody test for Salmonella Dublin for milk and cattle.



Dr. Belinda Thompson

# 2013

## First puppy born from frozen embryo

Clondike was born from the fertilized frozen embryo of a beagle mother and lab father. The puppy's birth was a breakthrough for developing improved assisted reproductive technologies for threatened species, including certain wolf species.

Dr. Alexander Travis with Clondike



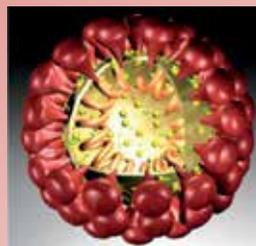
# 2013



Gary R. Whittaker, PhD

## Feline disease breakthrough

After gathering the world's largest sample collection of the virus causing the famously deadly disease feline infectious peritonitis (FIP), Cornell scientists uncover the holy grail of a 30-year quest for the mutation that turns it fatal.



# 2014



## Cornell Ruffian Equine Specialists launched

The College signed a lease-buy agreement with Racebrook Capital Advisors, LLC for the former Ruffian Equine Medical Center to establish Cornell Ruffian Equine Specialists, a referral and emergency care hospital. The hospital, located near the Belmont Racetrack backstretch in Elmont, N.Y., extends the reach of the Cornell Equine Hospital, where internationally renowned specialists inspire and capitalize on the synergy between the science and art of medicine.

Cornell equine specialists leverage their knowledge, experience, and professional partnerships to provide excellent specialty care in state-of-the-art facilities that promote the health and well-being of horses.



2015



### College forges Hong Kong veterinary education partnership

In its Sesquicentennial year, Cornell is excited and proud to partner with the dynamic and innovative City University of Hong Kong to establish the first school of veterinary medicine in Hong Kong. Animal health and welfare are at the core of food security, food safety, and the protection of human health through prevention and control of zoonotic diseases, issues of fundamental importance to Hong Kong and greater Asia.

Through its 150 years of experience as a leader and innovator in veterinary medicine, Cornell is well positioned to help develop a center of excellence for animal health and welfare in Hong Kong

that creates new knowledge of benefit to all of earth's creatures, trains professionals to prevent and treat animal diseases, and impacts the lives of animals and people through the clinical services, diagnostic testing, and continuing education.

Over the next decade there will be increasing demand in Asia for veterinary services and enormous opportunities for Hong Kong citizens in all areas of animal health. Cornell looks forward with great enthusiasm to working with City University of Hong Kong to build the region's leading college of veterinary medicine and advancing the wellbeing of animals and people.

**改善配套 兩年後再闖關**

# 康奈爾寄望城大：獸醫課程亞洲第一

**專訪**

大學教育資助委員會否決城市大學開辦本港首個獸醫資助本科課程，作為城大開辦動物醫學院「軍師」的英國康奈爾大學(Cornell University)，獸醫學院院長Michael Kotlikoff接受本報專訪表示，城大在兩至三年後，會第三次向教資會爭取開辦獸醫資助本科課程，並表示康乃爾大學「目標是令城大成功，並令城大的獸醫課程成為亞洲第一」。記者 林嘉暉

獸醫學院院長Michael Kotlikoff接受本報專訪表示，城大在兩至三年後，會第三次向教資會爭取開辦獸醫資助本科課程。

**兩度失敗不感意外**

對於城大兩度向教資會申請開辦獸醫資助本科課程，Michael Kotlikoff並不感到意外，他認為教資會對城大的提議合理，因此城大仍會繼續向教資會申請。他認為動物醫學院是城大發展的重要一環，能提升城大的學術地位，並為社會培養更多獸醫人才。

**合辦研討會儲經驗**

對於未來城大再次申請開辦獸醫資助本科課程的信心，他認為並不困難。他認為城大與康奈爾大學合作開辦獸醫資助本科課程，將能為香港帶來更多獸醫人才，並提升城大的學術地位。

**無懼挫折 辦研究生課程**

城大的大學教育資助委員會申請開辦本港首個獸醫資助本科課程，自○九年提出申請後，政府曾多次否決。Michael Kotlikoff表示，城大將繼續向教資會申請，並表示康乃爾大學「目標是令城大成功，並令城大的獸醫課程成為亞洲第一」。

**自資設動物醫學院**

城大於○九年與美國康奈爾大學簽署合作協議，共同開辦動物醫學院。在二○一二年，城大與康奈爾大學簽署合作協議，共同開辦動物醫學院。

**教資會評就業前景**

根據自資設立動物醫學院，城大仍有必要向教資會申請開辦獸醫資助本科課程。

記者 林嘉暉

Translation: Sing Tao Daily interviewed Dean of College of Veterinary Medicine at Cornell University, Michael Kotlikoff. Mr. Kotlikoff said that Cornell has been helping City University of Hong Kong to set up a faculty of veterinary medicine. He placed hope on the success it will bring, aiming to transform it into the best veterinary medicine course provider in Asia.

Dean Mike Kotlikoff appears in the Chinese publication, Sing Tao Daily

# Supporting the capital project

A tradition of naming spaces continues as the College looks towards the future

By Michael Carroll

**T**he College of Veterinary Medicine has a tradition of naming spaces to honor individuals or organizations as an exceptionally high honor for those who have made extraordinary contributions to the College. Whether it is the Jerry and Darlene Bilinski Learning Laboratory or the Flower-Sprecher Library, the next generation of Cornell veterinarians benefit from the contributions of others daily.

As the College prepares to build its future, new naming opportunities are allowing people to be a part of this legacy.

Judy and Fred Wilpon, long-time friends of the College, chose to name the new courtyard in honor of their dog, Lefty. Lefty's Courtyard is also a tribute to the amazing veterinary team whose lifesaving surgery at Cornell gave Lefty another 18 months of a very good quality of life after discovering a potentially fatal gastrointestinal stromal tumor just outside his stomach.

"It is a tribute to the College that kept him alive," said Judy Wilpon. "What Cornell accomplished for Lefty personifies what can be done to keep our animals healthy and happy."

The College's new atrium will be named Takoda's Run in honor of Janet Swanson's greyhound. It will serve as a gathering area for collaboration and events.

Dr. Don Powell '69 and his wife, Rita, decided to make a contribution for a new classroom named the Don DVM '69 and Rita Powell Classroom, designed to accommodate 60-seat classes.

"Cornell needs to have a building that correlates with the quality of applicants and graduates they turn out," said Don.

Cornell clinician Dr. Daniel Fletcher has revolutionized how future veterinarians learn through real-life scenarios practiced on robotic animals. The Tetlow and Roy Park Innovation Laboratory will be dedicated to simulation-based learning. This four-room suite will include two exam rooms for observation and space for the development of new models.

"Revolutionizing robotic animal training is appealing to

**"I chose to give to Cornell because I feel a strong gratitude for my education."**  
—Dr. Richard Basom

avoid the need to operate on live animals in training future veterinarians," said Park.

Dr. Richard Basom always felt a great deal of pride for the education he received at Cornell. This strengthened

when he saw how the College is growing. The Richard R. Basom DVM '44 Reading Lounge will be an area with tables and chairs designed as a space where students can quietly study and relax.

"I chose to give to Cornell because I feel a strong gratitude for my education," said Basom. "I'm proud to know it is so well thought of nationally."

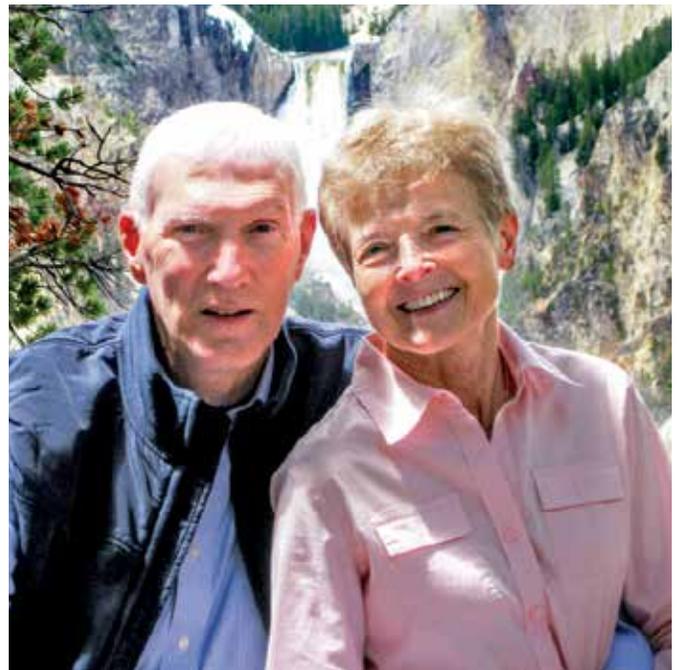
A project of this magnitude would not be possible without help from generous donors who have become close friends of the College.

"I give the dean and the group around him credit to take on this project," said Powell. "We give back because we've been successful and were blessed to go to a fine school and receive an excellent education."

These renovations and building improvements will help future generations of Cornell veterinarians stay at the forefront of medicine.



Judy Wilpon with Lefty



Dr. Don Powell '69 with his wife, Rita.



# Helping to find a cure

Long time friends of the College help fund the future of cancer research

By Michael Carroll

**A** gift from Sandra Atlas Bass, with a matching contribution from Judy and Fred Wilpon, led to the establishment of the Sandra Atlas Bass Endowment for Cancer Research to help the College push the frontier of cancer research.

Sandra, a lifelong animal lover, became involved with the College through her friend and veterinarian Dr. Brian Rind '65.

**“I gave this contribution hoping that, through research at Cornell, someone would help open the door to a cancer cure.”**

—Sandra Atlas Bass

When she read about cancer research at the College, she felt it was an area deserving support.

“I gave this contribution hoping that, through research at Cornell, someone would help open the door to a cancer cure,” said Sandra.

Sandra spoke with Bob Weiss, PhD, associate professor of

molecular genetics, about the potential impacts of this fund.

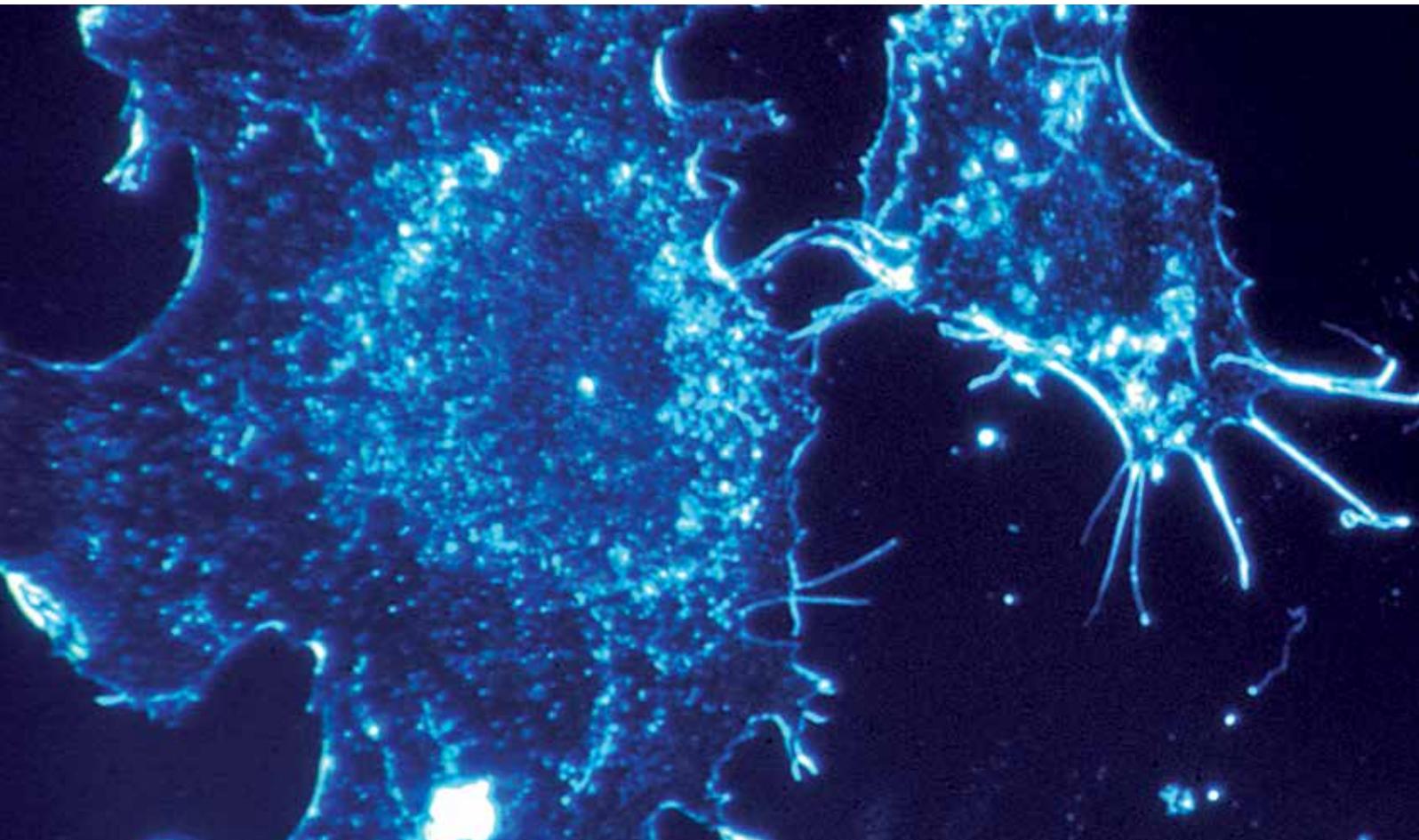
While Sandra and Judy and Fred Wilpon have yet to meet in person, their contributions to this fund are a natural fit.

“Our hearts are in the same place,” said Sandra in regards to the Wilpons.

“Sandra’s generosity and commitment to our animals is incredible,” said Judy. “There is so much more to be discovered and developed. To be a small part of Sandra’s effort is very gratifying.”

The Wilpons became interested in animal health due to the preponderance of cancer in the golden retriever breed. In one litter of their puppies, cancer was the cause of death for every one before the age of seven.

Judy Wilpon is especially interested in research being done at the College by Scott Coonrod, PhD, who is the Judy Wilpon Associate Professor of Cancer Biology. Coonrod focuses on finding ways to turn off genes in cells needed for growth.



Cancer cells

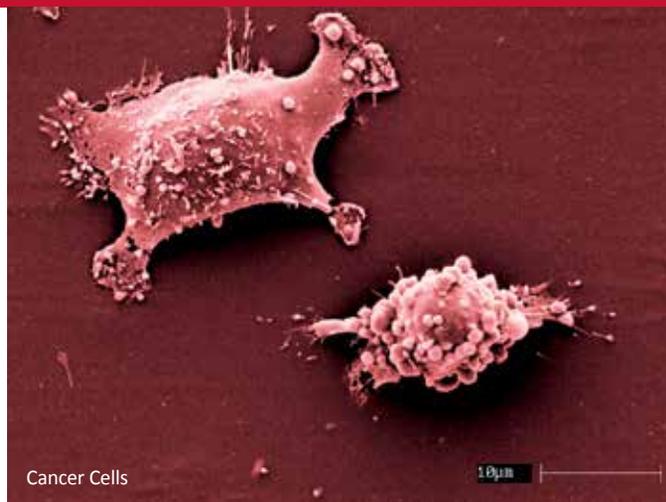
“Scott is doing some pioneering research that will continue to make a real difference in the treatment of our animals. I am thrilled to be able to support what he is doing” said Judy Wilpon.

The endowment is also allowing other researchers at the College to find new ways to prevent and cure these deadly diseases.

As many as one in 15 dogs will develop lymphoma and 80,000 people are affected annually in the United States alone. Kelly Hume, assistant professor in oncology, is studying the long-term use of doxycycline to inhibit B-cell lymphoma.

Dr. Andrew Miller, '05 assistant professor and the Anne Groot Sesquicentennial Fellow in the College of Veterinary Medicine, is investigating the role of immune cells in the progression of spontaneous-onset canine brain tumors and how this can also be applied to humans.

Dr. Bethany Cummings, assistant professor of biomedical sciences, is studying how bariatric surgery can reduce the risk of developing cancer by reducing hepatic inflammatory signaling, which will lead to a better understanding of cancer biology.



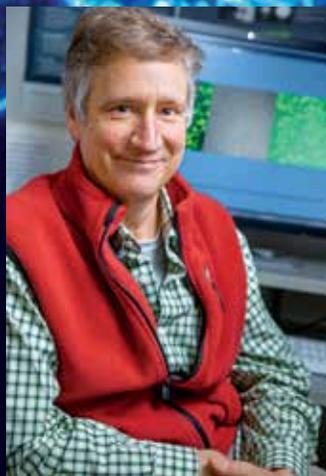
Dr. Gerlinde Van de Walle, assistant professor of viral pathogenesis, is studying breast cancer in humans, dogs, and horses to find an understanding of the fundamental mechanisms underlying cancer, which has the potential to revolutionize treatment.

The Sandra Atlas Bass Endowment for Cancer Research is making these studies possible. Thanks to generous support from people like Sandra Bass and Judy and Fred Wilpon, Cornell is able to conduct such revolutionary research.

Judy notes, “It is very special to know that we are able to make a difference in the health and lives of so many of our beloved animals.”

**“It is very special to know that we are able to make a difference in the health and lives of so many of our beloved animals.”**

—Judy Wilpon



Scott Coonrod, PhD, the Judy Wilpon Associate Professor of Cancer Biology



Dr. Bethany Cummings, assistant professor of biomedical sciences



Dr. Gerlinde Van de Walle, assistant professor of viral pathogenesis

Dean Michael Kotlikoff builds a cat scratcher for a shelter in D.C. at a Sesquicentennial event



In Memoriam

Since the July 2014 issue of 'Scopes, the College has been notified of the passing of the following:

- Dr. Michael A. Ball '92**, December 20, 2014
- Dr. Stanwood B. Churchill '57**, June 11, 2014
- Dr. Henry M. Doremus '46**, November 9, 2014
- Dr. Bruce R. Dickinson '49**, August 6, 2014
- Dr. Stanley Fellenbaum '54**, September 22, 2014
- Dr. W. Morton Howe '57**, April 25, 2014
- Dr. James L. Laurita '89**, September 9, 2014
- Dr. Byron McAvoy '46**, June 30, 2014
- Dr. Richard E. Miller '54**, December 3, 2014
- Dr. Joseph E. Paddock '52**, May 3, 2014
- Dr. Edward H. Park '02**, May 2014
- Dr. Robert G. Schirmer, Sr. '46**, October 16, 2014
- Dr. James L. Shupe '52**, October 8, 2014
- Dr. Robert W. Thomas '57**, December 22, 2014
- Dr. Donald E. Webster '49**, November 11, 2014

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#cornellgivingday

**03-25-2015**

**WHAT DIFFERENCE CAN A SINGLE DAY MAKE?** CORNELL'S FIRST-EVER 24-HOUR GIVING DAY

# Class of 2016 begins clinical portion of training at College's annual White Coat Ceremony



White Coat Ceremony 2014

**Cornell's annual White Coat Ceremony was held** on December 6, 2014 to recognize the one hundred and two members of the class of 2016 as they transition from the preclinical to the clinical portion of their veterinary educational training. During this rite of passage, the students each received a white coat, the symbol of professionalism and empathy in medicine. Students were accompanied on-stage and coated by their professional mentors who have provided support and encouragement along the way.

Drs. Steven Osofsky '89, Executive Director of Wildlife Health and Health Policy at the Wildlife Conservation Society, and Susan Hackner, Chief Medical Officer and Chief Operating Officer at Cornell University Veterinary Specialists, spoke to the group about the significance of the moment. As the students transition from the classrooms to the clinics, the speakers reminded them to stay focused on taking the knowledge they have learned and apply it to each specific client's needs.

Along with the symbolic act of being coated, the students were led by Dr. Edward Gschrey '86, treasurer of the Alumni Association Executive Board, in reciting the Veterinarian's Oath. The students promised to use their knowledge to protect animal health and welfare, prevent and relieve animal suffering, aid in the conservation of animal resources, promote public health, and help the advancement of medical knowledge.

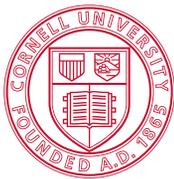
Family and friends attended the celebration.

## Veterinarian's Oath

Being admitted to the profession of veterinary medicine, I solemnly swear to use my scientific knowledge and skills for the benefit of society through the protection of animal health and welfare, the prevention and relief of animal suffering, the conservation of animal resources, the promotion of public health, and the advancement of medical knowledge.

I will practice my profession conscientiously, with dignity, and in keeping with the principles of veterinary medical ethics.

I accept as a lifelong obligation the continual improvement of my professional knowledge and competence.



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College of Veterinary Medicine

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