

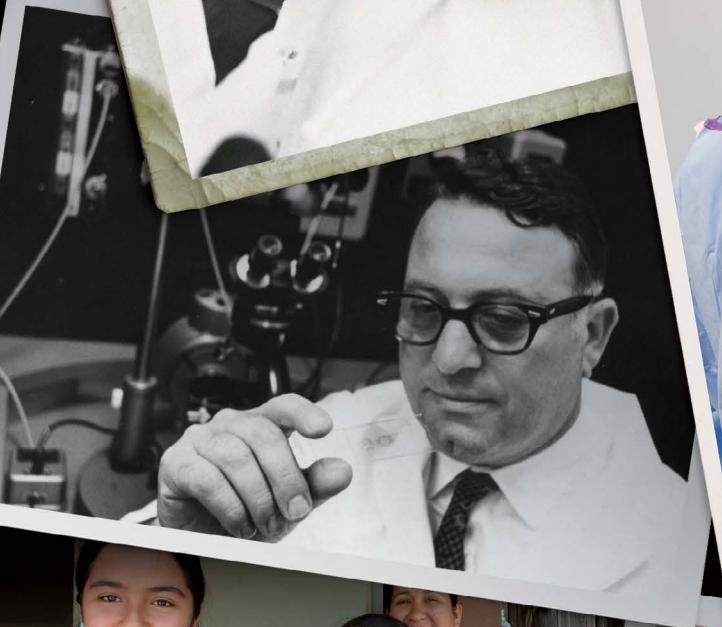
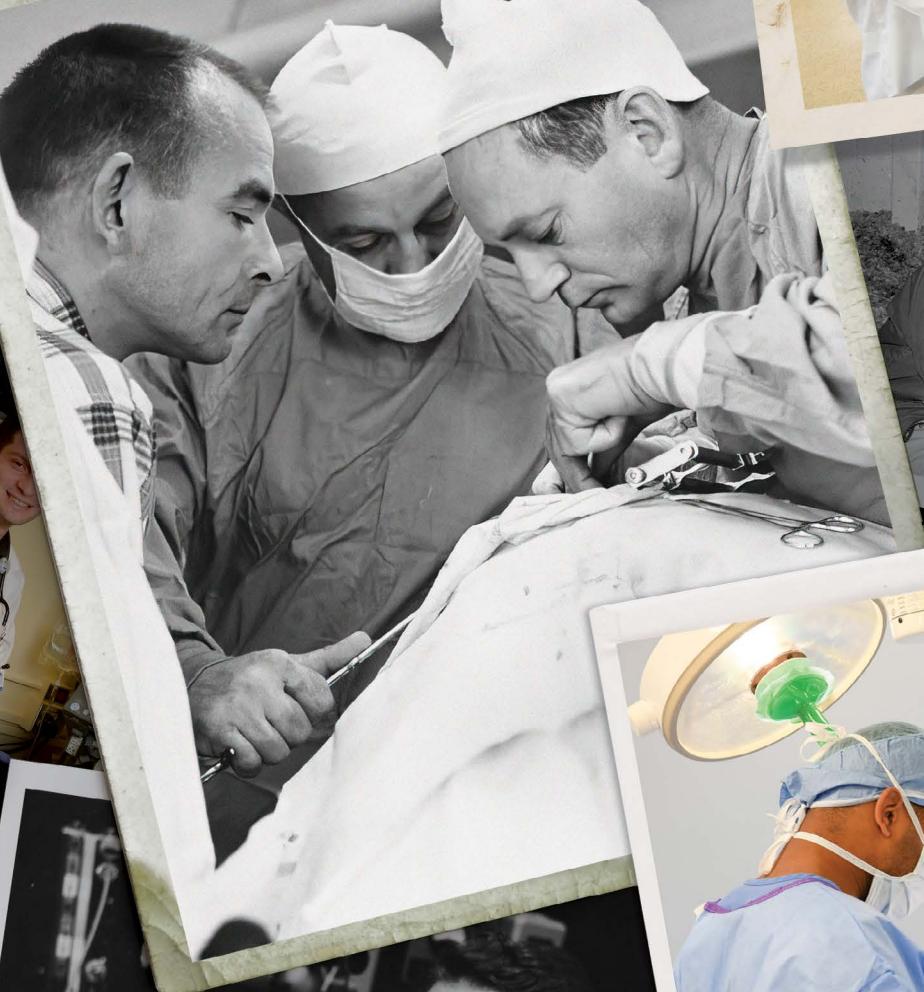
Spring 2023

UC Davis Veterinary Medicine

Synergy

75 Years of Exceptional Care and Innovation





A Message from the Dean



T

he School of Veterinary Medicine was established in 1948, but as you'll read in our main feature, it was years prior when the ideas and hard work began. From their initial concept, it took several decades for the school's founders and supporters to see their dreams of a veterinary school in California become reality.

With their dedication and insistence on the highest standards, UC Davis didn't just launch a school—it used that pent-up energy and potential to launch a game-changing institution. We hold firm to those original ambitions and continue to educate the world's greatest leaders who serve California and beyond.

It is with immense pride that I am provided the opportunity to guide the school as we celebrate 75 years of exceptional care and innovation. As I reviewed our historical journey, I've been struck by how UC Davis has led veterinary medicine since its inception. The school immediately inspired changes nationally to the educational curriculum. It pioneered veterinary teaching hospitals and created formal advanced veterinary specialties and training. It helped introduce to the world the One Health paradigm, which centers around collaboration and improving the health of animals, people and the planet.

UC Davis continues to provide leadership today, and we'll focus on that in our fall issue of *Synergy*. In the meantime, this anniversary is an opportunity for us to celebrate the breakthroughs achieved, lives saved, and yes, good times we've had together. To see more history of the school and find out how to join in with the festivities, please visit the 75th anniversary site at www.vetmed.ucdavis.edu/75th-anniversary.

Veterinary medicine inspires me to be my best and I feel privileged to help lead this caring and innovative community. Thank you for joining us on this spectacular journey.

A handwritten signature in blue ink that reads 'Mark D. Stetter, DVM, Dipl ACZM'.

Mark D. Stetter, DVM, Dipl ACZM
Dean

Synergy

Dean

Mark D. Stetter

Assistant Dean of Advancement

Lee Ann Jansen

Director of Communications

Tom Hinds

Editor

Trina Wood

Contributors

Erin Min, Carolyn Sawai, Rob Warren, Amy Young, UC Davis Health, UC Davis News

Copyeditors

Tamara Shevlin, Margaret Wong

Photographers

Mike Bannasch, Vu Dao

Design

CMB Design Partners

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Mail:

Synergy Magazine
School of Veterinary Medicine
University of California
944 Garrod Drive
Davis, CA 95616

All other correspondence should be sent to: tjwood@ucdavis.edu

Synergy is online at: synergy.vetmed.ucdavis.edu

Phone: 530-752-7024

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Honoring Our Past,
Embracing Our Future



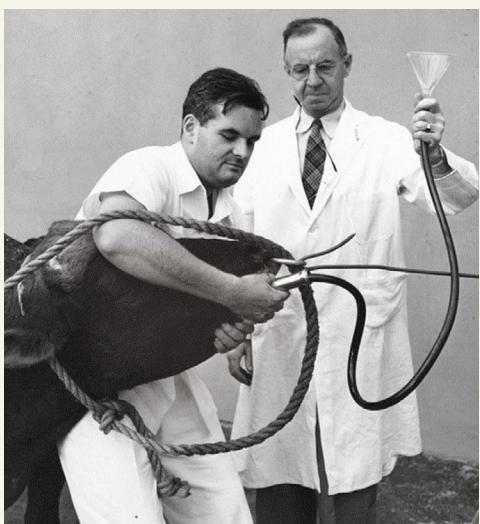
We're kicking off a year of activities to celebrate the school's 75 years!

Alumni should have received an invitation to an event-filled weekend on **April 28–30**.

Keep an eye out for emails, announcements and other events.

Visit: www.vetmed.ucdavis.edu/75th-anniversary

We hope to see you!



20 / Forging a Path
for 40 Years

26 / Top Clinical & Research
Accomplishments
Over 75 Years



Giraffe Sex is Weirder Than You Thought

Professors Lynette and Benjamin Hart recently provided new insight into the unique sex lives of giraffes, their reproductive behavior, and how their anatomy supports that behavior in the journal *Animals*. The study—published close to Valentine's Day—garnered attention from media outlets worldwide including *Gizmodo*, *Yahoo News*, *Science Alert*, and *La Nación*.

Giraffes have no set breeding season. They don't go into heat, like dogs or cats. They don't make mating calls or provide visual cues of sexual readiness. So how is a male giraffe to know his advances will be well-received? In short: pee, pheromones and a gentle nudge.

First, the bulls provoke the females to urinate by nudging them and sniffing their genitalia. If the female is open to his invitation, she widens her stance and pees for about five seconds while the male takes the urine in his mouth. He then curls his lip, inhaling with an open mouth—an act called



A male giraffe at a watering hole in Namibia performs lip-curling as a female begins to urinate.
Photo: Lynette Hart/UC Davis

flehmen that transports the female's scent and pheromones from his oral cavity to the vomeronasal organ.

This study also uncovered other interesting discoveries about giraffe behavior: instances of giraffes seeking and chewing bones, a procession of giraffes arriving to investigate a giraffe corpse, and a bull emitting a loud growl were also observed.



Virus Hunters

CBS's *60 Minutes* sent a team to Uganda to document how virus hunters search for pathogens with pandemic potential. They interviewed wildlife epidemiologist Christine Johnson who leads a UC Davis team that has been hunting viruses around the globe for more than a decade.

The team humanely samples bats, non-human primates and mosquitos to look for zoonotic viruses—those that transfer from animals to humans. With population growth, humans have expanded into areas that narrow the buffer between people and wildlife.



Illness noted in people in the same areas can then be cross-referenced to the viruses identified to try to understand transmission of a particular virus. The researchers emphasized that as the threat of spillover events grow, it becomes more evident that human health and the health of the natural world are inextricably tied to one another.

CBS correspondent Bill Whitaker, center, prepares to interview Dr. Christine Johnson.
Photo: Amy Bond

Science Comes to the Rescue



A stellar seal eating salmon in the Salish Sea.

Photo: Joe Gaydos/SeaDoc Society

SeaDoc Society (a program within the school's Karen C. Drayer Wildlife Health Center) was heavily featured in a Sunday *Seattle Times* cover story about salmon populations and predation of fish by pinnipeds—or seals and sea lions. The issue is heated and often polarized, pitting salmon recovery and human rights of Tribes and First Nations against animal welfare issues related to removal of these pinnipeds to reduce salmon predation.

“While pinniped populations in the Salish Sea region are at their peak and salmon populations have declined to 6 to 7 percent of historical numbers, coincidence doesn’t mean there is a cause and effect,” said SeaDoc’s Director Joe Gaydos, who was

part of a task force that recommended pulling all the science together to take an independent look at the issue. “Rectifying the historic causes of salmon declines, including habitat destruction, hatcheries, dams and over-fishing are still at play.”

While state officials are considering lethal control of pinnipeds to help these fish populations recover, a major scientific review suggests that this drastic measure might not even work.

“Do we know enough to make a decision,” Gaydos said, “or are there big questions that still need to be answered before we do anything about pinniped predation on salmon? This is the type of complex societal issue where science adds huge value.”

Bird Flu Continues to Spread



Although avian influenza or bird flu has been around for a century, the world is currently going through its worst-ever outbreak. The highly infectious H5N1 strain is responsible for the death of hundreds of thousands of wild birds and millions of domestic ones. It is also being found in mammals, including dolphins, seals, foxes and otters in the U.K., grizzly bears in the U.S. and mink in Spain. It is believed the infected mammals had fed on dead or sick wild birds which had the virus.

Bird flu is an infectious disease of poultry and wild birds that historically flares up in autumn before fading away in spring and summer. It can spread through entire flocks of domestic birds within a matter of days, through droppings and saliva, or through

contaminated feed and water. This virus is well adapted to wild migratory birds. The huge amount of viral load in these wild populations creates a danger for commercial poultry operations, and carries it to places where the disease doesn’t usually arrive like South America, where it is infecting and killing shore birds and pelicans.

UC Davis experts have been quoted in *The Atlantic*, *San Francisco Chronicle*, *BBC*, and other outlets worldwide. While most people feel the impacts of bird flu when they are faced with higher egg prices or empty store shelves, many don’t understand the One Health connection between animals, humans and the environment that contribute to the spread of this disease.



West Coast Abalones at Risk

All seven of the United States' abalone species that live on the West Coast are now listed as Critically Endangered or Endangered on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species.

Six species—red, white, black, green, pink and flat abalone—are listed as critically endangered, based on an assessment led by Laura Rogers-Bennett, a senior environmental scientist with the school's Karen C. Drayer Wildlife Health Center, the California Department of Fish and Wildlife (CDFW), and the Bodega Marine Laboratory. The northern abalone, also known as threaded or pinto abalone, is listed as endangered.

The IUCN Red List is considered the world's most comprehensive inventory of the global conservation status of species.

While the listing does not carry a legal requirement to aid imperiled species, it helps guide and inform global conservation and funding priorities.

Abalones provide nourishment, cultural significance and ecological benefits for people, wildlife and the environment. Red abalones have been a mainstay of West Coast shellfish aquaculture industry, with a beloved recreational diving fishery in Northern California. However, overfishing, disease, the decline of kelp forests, warming ocean temperatures, and other impacts have decimated their numbers.

UC Davis and CDFW have been pioneering work to protect abalones. This includes the federally endangered white abalone captive breeding program and several studies involving the red abalone,

A red abalone is surrounded by a barren of purple sea urchins. Photo: Katie Sowul/California Department of Fish and Wildlife



ocean acidification, climate change and aquaculture. Restoring kelp forests and reducing climate impacts are key to helping abalone recover. Kelp is abalone's main food source, and its decline is intricately linked with theirs. When weakened by starvation, species are more susceptible to environmental changes like landslides following fires, ocean acidification and increased storms.

Hope for Spina Bifida Cure

Interdisciplinary research at the UC Davis Schools of Medicine and Veterinary Medicine led to the clinical CuRe Trial: Cellular Therapy for In Utero Repair of Myelomeningocele, which delivered stem cells during fetal surgery to treat spina bifida. The novel treatment, delivered while a fetus is still developing in the mother's womb, could improve outcomes for children with this birth defect.

Myelomeningocele, also known as spina bifida, occurs when spinal tissue fails to fuse properly during the early stages of pregnancy. The birth defect can lead to a range of lifelong cognitive, mobility, urinary and bowel disabilities. It affects 1,500 to 2,000 children in the U.S. every year. Surgery before birth can

Two bulldogs involved in the veterinary clinical trial to treat spina bifida.

Photo: Don Preisler



prevent or lessen the severity of the fetus's spinal damage, which worsens as the pregnancy progresses.

The pioneering surgical techniques and stem cell patch used in the trial were refined by School of Medicine surgeons and bioengineers in collaboration with UC Davis School of Veterinary Medicine researchers treating spina bifida in dogs.

Spina bifida is a common birth defect in English bulldogs and frequently leaves them with little function in their hind end. The surgery was performed on 10-week-old bulldog siblings, making them the world's first dogs with this condition to be successfully treated with surgery and stem cells. By four months post-surgery, the pair were walking, running, and playing.

The approach is still in the early stages, with four of the thirty-five families enrolled in the CuRe Trial.

Experimental COVID-19 Vaccine Offers Long-Term Protection



In a collaborative effort among 42 authors from multiple institutions, researchers showed that two-dose SARS-CoV-2 vaccines provide protection against lung disease in rhesus macaques one year after they were vaccinated as infants. The work was published in *Science Translational Medicine*.

The research team included Koen Van Rompay, Katherine Olstad and Smita Iyer—from the school's Department of Pathology,

Microbiology and Immunology—along with many other scientists at the UC Davis California National Primate Research Center (CNPRC).

To evaluate SARS-CoV-2 infant vaccination, the researchers immunized two groups of eight infant rhesus macaques at the CNPRC at two months of age and again four weeks later. Each animal received one of two vaccine types: a preclinical version of the Moderna mRNA vaccine or an adjuvanted vaccine combining a protein developed by the Vaccine Research Center of the National Institute of Allergy and Infectious Diseases (NIAID). An adjuvant is an ingredient used in some vaccines that helps create a stronger immune response in people receiving the vaccine.

One year later, the animals were given a high-dose challenge with a SARS-CoV-2 variant. Both vaccines protected against lung disease, even though the viral variants had numerous mutations in their spike proteins that were different from those contained in the vaccines. The adjuvanted protein vaccine candidate maintained higher levels of neutralizing antibodies overall and provided superior protection compared to the mRNA vaccine.

These results imply that the vaccines are safe and highly effective when given to young infant macaques. Furthermore, they inform the optimization and development of SARS-CoV-2 vaccines in a way that may reduce the need for frequent boosters and protect special populations that do not have fully developed immune systems, such as young children.

Infants are one of the pediatric populations most vulnerable to COVID-19. This study demonstrates the clear and long-lasting benefits of immunizing infants against SARS-CoV-2. The resources and tools developed during the course of this study will also be valuable to combat future respiratory disease outbreaks in pediatric populations.

Zoonotic Disease in Dogs Rises in Southern Chile

A parasitic disease, canine echinococcosis, increased in Chile's Tierra del Fuego province after a governmental dog deworming program was canceled in 2004, according to a study from the school's One Health Institute in collaboration with the Universidad de Chile and the Wildlife Conservation Society-Chile.

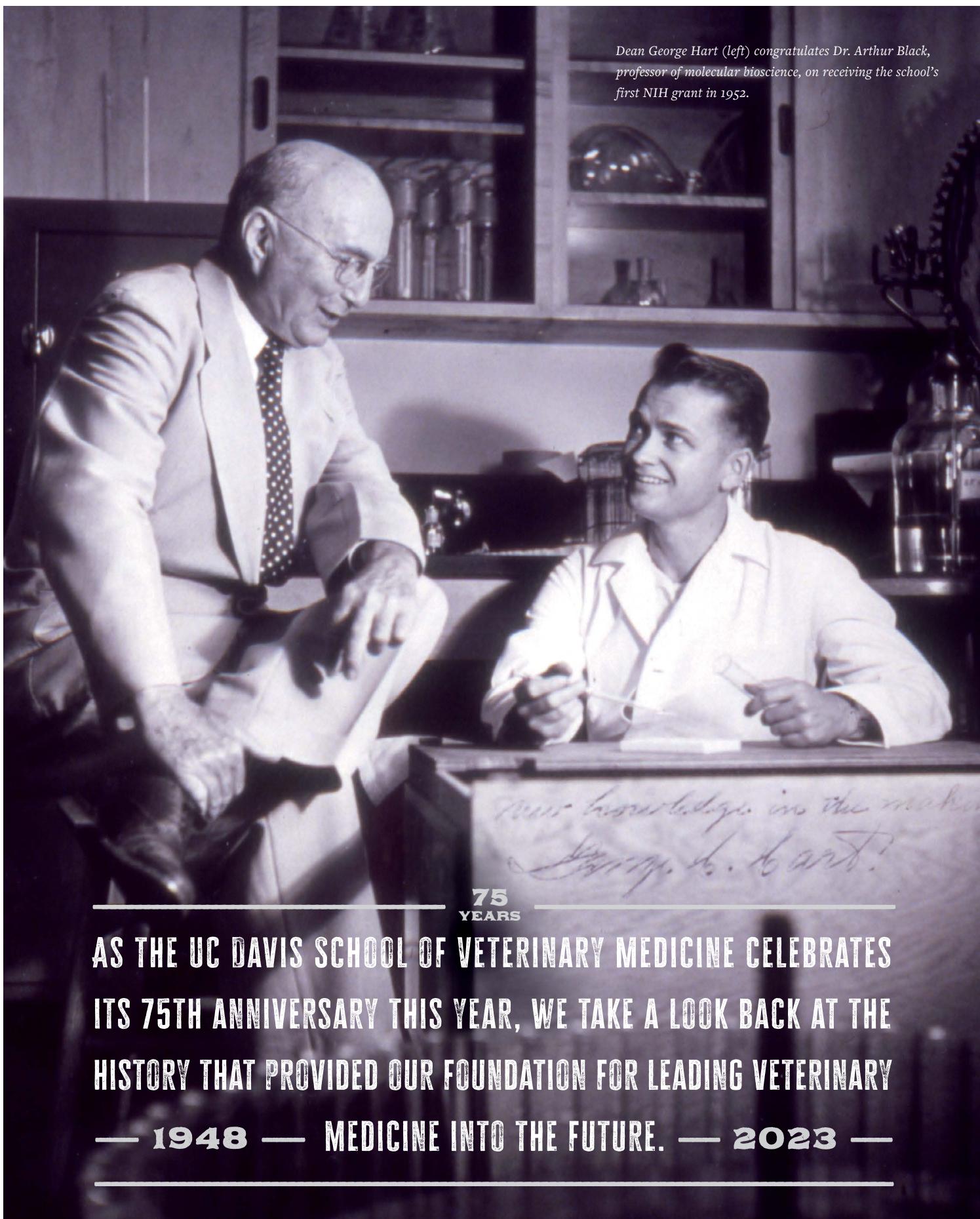
Published in *Zoonoses and Public Health*, the research showed this zoonotic disease affects more than 1 million people worldwide and is the second most common cause of human deaths from parasitic disease in Chile. It is caused by the tapeworm *Echinococcus granulosus*, which is shed by dogs and can infect people.

Dogs acquire the disease by consuming viscera of infected animals, such as sheep, making it prevalent in sheep farms and rural communities. The deworming program had reduced the disease prevalence in the region's dogs from 68.4% in 1978 to 1.2% in 2002. The study found that without the intensive program, canine echinococcosis increased to 6.9% as of 2016. Infection prevalence was also associated with reports of the presence of culpeo foxes. All canids present on the island, including the native culpeo and the introduced chilla foxes, are known to be hosts of the disease.



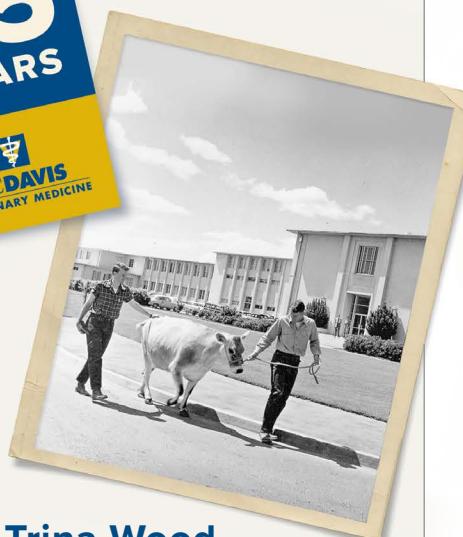
Dogs at a sheep ranch lounge beside a vehicle in Tierra del Fuego in southern Chile. Canine echinococcosis, a parasitic disease, has increased in the province after a deworming program was canceled. Photo: Eric Eisenman/UC Davis

Dean George Hart (left) congratulates Dr. Arthur Black, professor of molecular bioscience, on receiving the school's first NIH grant in 1952.



AS THE UC DAVIS SCHOOL OF VETERINARY MEDICINE CELEBRATES
ITS 75TH ANNIVERSARY THIS YEAR, WE TAKE A LOOK BACK AT THE
HISTORY THAT PROVIDED OUR FOUNDATION FOR LEADING VETERINARY

— 1948 — MEDICINE INTO THE FUTURE. — 2023 —



By Trina Wood

While we may be celebrating three quarters of a century, the genesis of the UC Davis veterinary school goes back much farther. Before the first class of 42 DVM students launched into studies in the fall of 1948, there was a failed University of California (UC) veterinary college in San Francisco; several decades of fighting for legislative support; the intervention of World War II; and the tireless energy of R. Vince Garrod, a prune and apricot grower from Saratoga, who pushed for the school to eventually be established.

The UC first organized a College of Veterinary Medicine in 1894 on the San Francisco campus. A total of ten students graduated before it closed in 1899 due to a lack of financial support and low enrollment. At the time, most other veterinary colleges in the nation required only an elementary education while the UC required a high school diploma or the equivalent. In addition, there was competition from a privately supported San Francisco Veterinary College, specializing in equine health to care for horses needed for transportation.

Responding to a growing need for veterinary care in the state, UC Berkeley's College of Agriculture established a Division of Veterinary Science in 1901

where research veterinarians began to investigate important diseases of livestock and poultry. As the UC Davis campus grew, some of the research activities were conducted here. Those activities became foundational to the future work of faculty and staff at the school.

Dr. Clarence M. Haring, a veterinary science professor and director of the UC Agricultural Experiment Station, sought to bring a DVM program to the Davis campus and first presented information on annual budgeting and building costs to the UC administration in 1920. That initial effort failed and by 1938, the American Veterinary Medical Association and the California Veterinary Medical Association cited an urgent need for veterinary training in the growing state. That same year, the California Farm Bureau passed a resolution at their annual meeting to "lend our influence toward the establishment of a College of Veterinary Science at the University of California."

The case for a California-based veterinary school came before the State Board of Agriculture where Garrod was a member. As a leader in several other civic and business organizations, he became passionate in advocating for the school by gathering facts and information to present to the Legislature, the Governor, livestock organizations, Chambers of Commerce and the press. He documented the needs of animal industries, the difficulty in finding

veterinarians, and the role of veterinary medicine in protecting the public health.

News releases from the State Department of Agriculture on animal diseases bolstered those justifications. Those diseases included: a severe 1940 outbreak of equine encephalomyelitis; a screw-worm infestation in livestock; the growing concern over brucellosis in cattle; and an outbreak of dourine among horses in Arizona, California and Nevada with resulting quarantines and testing programs. All received widespread newspaper coverage and provided examples that emphasized to legislators and the public the need for greater competence in veterinary medicine.

World War II derailed the efforts to establish the veterinary school at Davis for a few years before a legislative bill finally passed in 1946 authorizing the school. Garrod summarized the steps it had taken to reach that place in a document that opened with this: "In the future, when California's College of Veterinary Medicine is recognized as the leading institution of its kind in the world, and when the valuable contribution of its graduates to the general welfare will cause speculation as to why this great center of learning was not started long ago, no doubt, there will be need for a record of how the college was created, why it was created, when it was created and what was expected of it in the beginning."

Breaking New Ground

Haring put off retiring for one year (after 43 years of service to the university) to act as the inaugural Dean of the UC Davis School of Veterinary Medicine from 1947–48, helping to develop a curriculum that “should be second to none.” He believed that the best teaching would be done by faculty members whose minds were challenged in demanding research laboratories. He guided a curriculum committee that recommended a Bachelor of Science degree in Agriculture be given at the end of the first two years of the veterinary curriculum; the last two years leading to the DVM degree would be placed under a Graduate Council.

When the first class of 42 men (mostly WWII veterans) began courses in the fall of 1948, most of them studied livestock medicine to help control disease outbreaks and protect public health. The curriculum had been designed with key ideas and innovations, the most important being:

- An emphasis on functional anatomy where several species were dissected simultaneously with reference to physiology, pathology and clinical practice.
- A connection between basic laboratory sciences and applied veterinary medicine by establishing a Department of Clinical Pathology. Led by Dr. Oscar W. Schalm, this department became renowned for its leadership in

hematology, mastitis and clinical biochemistry, and set a standard for teaching in other schools.

- The integration of traditional disciplines—for example, discussing normal cells and organs followed by discussion of abnormal or pathological.

While some of these initial ideas remain, curriculum committees throughout the past 75 years have constantly engaged to improve and revise coursework to provide the strongest foundation possible for the school's DVM graduates.

Even after getting the legislative green light to establish the first professional school at UC Davis, planning the buildings and financing them remained a hurdle. It was soon clear that the initial \$500,000 provided by the state would be insufficient. As planning moved forward, material and labor costs increased drastically, bringing about discussions of a reduced program and building plans. To his credit, Haring refused to let the university back out of its pledge to build a first-class school.

Although a portion of the initial plans had to be scratched, the main building went forward with careful attention to construction appropriate for a medical and research facility. Rain moved the groundbreaking ceremonies indoors on April 18, 1948 to the Recreation Hall on the Davis campus. The project as eventually completed was designed to provide for 40 students per class, and contained 92,289 square feet with

an additional 10,000 square feet for clinic hospitals and an ambulatory clinic garage at a total cost of \$4.5 million. It was dedicated on March 20, 1950 as the Veterinary Science Building, but soon after Haring's death in July of 1951, the building was renamed Haring Hall.

At the time, many thought the building was too large. As Dean Emeritus Donald Jasper included in his recounting of the school's history: “No one anticipated that within ten years the needs of veterinary medicine would have outgrown these marvelous quarters.”

Instruction began in the fall of 1948, before the school had its own facilities. That first year of classes, only two courses were required: a 9-unit course in anatomy in the fall and a 10-unit course in microbiology in the spring. Makeshift laboratories in the Animal Science building worked reasonably well, although they proved quite crowded for anatomy. The following year introduced histology/pathology, pharmacology and parasitology.

Dr. George H. Hart took on the role of dean in 1948 and served for the following six years. Prominent in livestock and veterinary circles, Hart brought a strong reputation in the field of animal disease.

1 Members of the founding faculty in 1952.*

2 Groundbreaking ceremonies, April 18, 1948. Governor Earl Warren (left) watches as Dean Claude Hutchison points to the architect's drawing of what would become Haring Hall. Harold Parker, Class of 1952, holds the groundbreaking shovel presented to him by UC President Robert Gordon Sproul (second from right).*

3 Dr. Oscar W. Schalm helped establish the Department of Clinical Pathology, which set a teaching standard for veterinary schools nationwide.

4 An anatomy lab session in the early years of the school.*



Under his tenure, the school established areas of responsibility that were informally referred to as "departments." While those areas have changed and been refined over the years, the school still relies on six academic departments, each with a unique mission for propelling veterinary medicine forward. (See cover feature in *Synergy*'s Fall 2022 issue.)

An Executive Committee was formed to assure that members of the school had a voice in its governance. A Dean's Advisory and Budget Committee was also established to deal with matters of interest of the welfare of the school, and an Assistant Dean position created.

Founding faculty member Dr. Donald Jasper assumed the deanship in 1954 and served until 1962. An expert in *Mycoplasma* mastitis in dairy cattle, he had helped set the stage for future successes with his research focused on milk quality, mastitis screening and mechanisms to prevent udder injuries. By the end of his term, the school had achieved full accreditation from the American Veterinary Medical Association (AVMA) Council on Education. It had also admitted the first African American student in 1961, Amy Wilson Hosein, one of only seven female students in her class.

Change Is A Comin'

By 1962 when Dr. William Roy Pritchard was appointed as dean, veterinary education across the country was going through a period of major change.

Prior to WWII, there were only 10 veterinary colleges in the U.S. and two in Canada. After the war, with veterans returning to colleges and universities, there was a massive influx of students in higher education institutions, many of them seeking a veterinary degree. With each college admitting only 50 to 60 students a year, there weren't enough spots for highly qualified applicants. By 1962, eight more states, including California, had established veterinary schools or colleges, bring the total number to 20 in North America.

The curriculum of all schools was focused mainly on diseases and disease prevention of farm livestock with a growing concern for the health of dogs and cats. But clinical teaching was limited along with the facilities to do so.

There were few clinical specialists on faculty other than for medicine, surgery and reproduction. At the same time, research programs were growing as a result of a major expansion of the nation's biomedical research effort, including the launch of the National Institutes of Health after WWII.

Pritchard noted in his memoirs that an accelerated rate of change was happening in the biomedical sciences, livestock production, veterinary practice and society as a whole in the 1960s.

"It was clear to me...that the school and the faculty would have to embrace unprecedented change and rapidly adjust school programs to newly forming realities,"

he wrote. "If the school hoped to serve these changing needs, we must welcome new ideas and new ways of doing things."

Pritchard was also aware of the need to brand the school, bring more attention to its relatively obscure status, and educate the public on "how the school and its graduates served unique and vital needs of society and that most of what veterinarians do could not be done as effectively by any other group or profession."

He gave dozens of talks to veterinary associations, livestock producer groups, and Rotary clubs. Excerpts from one of his talks, "One Medicine, a Concept Rapidly Becoming a Reality," was published in the *California Veterinarian* in 1964, well before the current widespread popularity of the concept among veterinary medical leaders.

Over time, the phrase "One Medicine" was used interchangeably with "One Health." Integration of veterinary and human medicine in a One Health approach began with the first comparative and preventive medicine department in a veterinary school at UC Davis. That concept expanded when the California National Primate Research Center (CNPRC), which had been established in 1962, moved under the auspices of the veterinary school in 1972. Scientists conducted federally-supported studies on nutrition and the effects of aging on cognition and memory; thalidomide and other agents that cause birth defects; and the effect of air pollution on primate lungs to establish and refine air quality standards.



1 Dean Emeritus Edward Rhode was pivotal in developing what is now called the California Animal Health and Food Safety Laboratory System.

2 In 1961, Amy Wilson Hosein became the first African American student admitted to the program and was one of only seven female students in her class.

3 Dean Emeritus William R. Pritchard, left, and then Dean Bennie Osburn during the renaming of the teaching hospital in 2007 to honor Pritchard.

4 Dentistry was one of the specialty services established in the new teaching hospital.

5 Dean Emeritus Frederick Murphy holds an electron micrograph image of the newly identified Ebola virus. Murphy was on the scientific team that discovered the virus.



Veterinary scientists at the CNPRC were also on the forefront of AIDS research and developing novel vaccines for HIV/AIDS. While the CNPRC moved under the umbrella of the main campus's Office of Research in 2009, veterinary faculty at the center continue to make groundbreaking discoveries, including those that have contributed to developing COVID-19 vaccines.

As large commercial livestock production became more common, producers expressed a greater need for veterinarians to monitor and prevent diseases in their herds rather than seeking care for individual animals. That desire helped drive the establishment of the Master of Preventive Veterinary Medicine (MPVM) in 1967, the school's second professional degree program. The curriculum, largely the brain child of Professor Calvin Schwabe, was modeled after the Master of Public Health degree and was the first course of its kind in any veterinary school.

Creation of the MPVM program was also a response to focus the DVM and graduate programs in ways that would better prepare UC Davis graduates for the many new job opportunities for veterinarians evolving in non-practice areas of the profession in both the public and private sectors. More than 1040 veterinarians holding MPVM degrees from UC Davis now serve in 51 countries around the globe. These graduates have helped expand the school's international horizons to enhance animal health and food production, especially in underdeveloped regions.

While the need for veterinarians in society as a whole had become better understood, there was still a lack of governmental support and funding to expand training of future DVMs. Pritchard's law degree proved useful when he spoke before the U.S. House of Representatives in 1966 regarding the future of veterinary education. His testimony helped garner federal funding for nine more veterinary schools across the country and to build veterinary teaching hospitals—including the one at UC Davis that carries his name.

In just over a decade, Haring Hall was too small for ongoing programs and didn't include proper space for research, a clinical program or hospital space. That was finally rectified when the Veterinary Medical Teaching Hospital opened in 1970, on what was becoming the new campus for the school. Pritchard had been instrumental in its design, funding and implementation. The school named the hospital after him in 2007, making his name synonymous with the world-class veterinary program he helped create.

As the first of its kind, the hospital became the model for nearly every veterinary college in North America. For the first time, DVM students were able to select an area of species emphasis before graduation. That move set a new standard for expanded clinical training and the opportunity to specialize led to the more than 30 residency training programs now available at Davis—the largest residency program in the nation. Many of those specialties were pioneered at UC Davis,

including zoological medicine, neurology, behavior, shelter medicine and many others. The program annually trains 133 house officers in 39 specialty disciplines.

Toward the end of Pritchard's tenure in 1980, the school was named #1 in the nation by *U.S. News and World Report*. The school also established a development program to provide current-use funds and build endowments for scholarships and other programs.

Protecting Public Health

During Dean Edward Rhode's tenure from 1982–91, the school—in cooperation with the California Department of Food and Agriculture—established the California Veterinary Diagnostic Laboratory System, later renamed the California Animal Health and Food Safety Laboratory System (CAHFS). The lab facilities in Davis, Turlock, Tulare and San Bernadino protect the state's food supply, racehorse welfare, and other aspects of animal and human health.

Current biosecurity strategies to prevent disease outbreaks in production animal herds and flocks are based on early programs developed by school faculty and staff. For example, a UC Davis team worked with a USDA task force in 2002–03 to help stop the spread of exotic Newcastle disease from backyard poultry to commercial flocks. The collaborative effort contained the outbreak two years sooner than expected, and saved poultry producers more than \$500 million.



The greater focus on herd health was also part of the impetus to create the Veterinary Medicine Teaching and Research Center (VMTRC) in Tulare—the heart of the world's dairy production. Established in 1983, it is now renowned for its dairy cattle research and training programs. Among other breakthroughs, research conducted through the VMTRC led to the J-5 mastitis vaccine in 1988, improving animal health and saving dairy producers millions of dollars each year. Research, extension and diagnostic laboratory faculty have also helped producers manage *Salmonella*, *E. coli* and *Neospora*.

Another major shift was happening in the school's student body. While more women had applied and been accepted into veterinary school beginning in the 1960s, by 1985, women DVM graduates outnumbered men for the first time at UC Davis. According to the AVMA, in 2022, women represented 83% of DVM graduates nationwide.

While state and federal support for veterinary education rose and fell throughout the years, Dr. Frederick A. Murphy—a preeminent veterinary virologist—became the sixth dean in 1991 at one of the most difficult times in the school's history. In the first two years of his appointment, the school lost \$2.5 million in state appropriations, dropped its entering class size from 122 to 108, and lost 15 faculty positions. Additional retirements during these years reduced the size of the faculty by more than 25 percent.

Under Murphy's guidance, the school consolidated from 11 to six departments, streamlined administrative processes, increased opportunities for faculty collaboration and saved \$300,000 annually without any staff layoffs. He also helped secure several private gifts to the school, including \$1.6 million from the Lucille P. Markey Charitable Trust for a Center for Comparative Medicine; the \$650,000 John P. Hughes Chair in Equine Reproduction, the school's first endowed chair; and the \$400,000 Koret Foundation endowment to initiate a faculty/student exchange program with the Koret School of Veterinary Medicine at the Hebrew University in Israel. Bequests to the school also jumped substantially.

To maintain and enhance the school's research enterprises, a number of species or discipline focused centers were established similar to what is now known as the Center for Equine Health. These multidisciplinary centers provided a focal point for faculty collaboration and enhanced fundraising and grant writing success. Examples of centers founded during this time include: the Center for Companion Animal Health, the Wildlife Health Center, the Center for Comparative Medicine, the Veterinary Orthopedic Research Laboratory, and the Center for Vector-borne Diseases. (Visit *Synergy* online for more about these and other centers.)

By 1996, the school's research budget had grown to more than \$46 million, a significant portion of it from private funding.

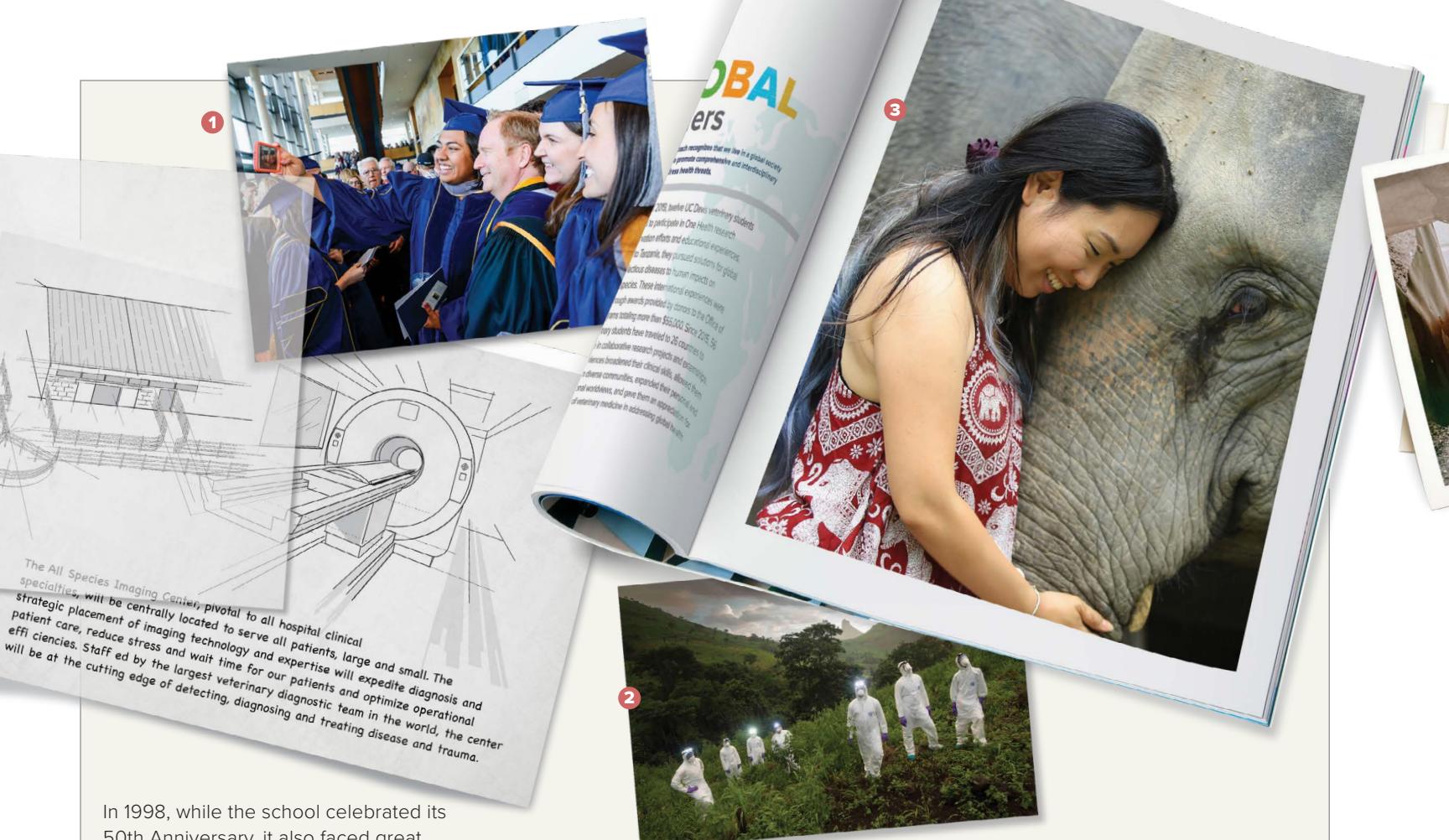
When Murphy retired, he noted, "This is the best vet school in the world with only one problem: its aging facilities."

Entering a New Millennium

Dr. Bennie Osburn accepted the role of dean in 1996, shortly before the school's bicentennial celebration, and proceeded as a guiding force for new centers and programs throughout three terms. As an authority on the pathogenesis of viral diseases, Osburn was (and remains) strongly committed to research, food animal safety, and enthusiasm for the broad role of veterinary medicine.

The devastating floods of 1996 in Northern California highlighted the critical need to incorporate organized animal rescue methods into emergency response planning. Faculty members, staff and volunteer students worked with statewide agencies to build the Veterinary Emergency Response Team, a veterinary disaster response program based on the Standardized Emergency Management System.

In another move that exemplified the school's commitment to public service, the school signed a memorandum of understanding with what was then called the California Department of Fish and Game to establish the Oiled Wildlife Care Network. The statewide coalition of agencies, academic institutions and wildlife organizations housed under the school's One Health Institute has become an international model for rehabilitation, research and education.



In 1998, while the school celebrated its 50th Anniversary, it also faced great challenges. The AVMA Council on Education placed the school on limited accreditation status for major facility deficiencies associated with the outdated Haring Hall. This touched off a massive \$354 million long-range facilities plan that would last for the next decade, and include the construction of several state-of-the-art teaching, research and clinical facilities to transform the medical sciences complex into a modern veterinary campus.

The school also launched a \$50 million campaign, the school's most ambitious development fundraising effort to date. The money would be used to finance critically needed clinical and research space for the school's Center for Companion Animal Health, as well as endowments for student scholarships, faculty positions and research centers. The Wayne and Gladys Valley Foundation provided \$10.7 million—the largest gift in campus history at the time. The school was also able to garner additional funding (\$2.5 million) from the state to grow its class size to 131, expand the resident program to 90, and create a presence in southern California through the University of California Veterinary Medical Center-San Diego.

Despite growing pains and challenges at the school's mid-century mark, Osburn remarked, "This is the veterinary medicine that will lead us into a new millennium." And it has.

Supporting Student Success

Dr. Michael Lairmore was recruited as dean in 2011 and proved an apt fit with combined training as a dairy and small animal veterinarian, and scientific research experience in retroviruses at the Centers for Disease Control. His background in a One Health approach helped lead the school's efforts in pandemic preparation/prevention.

A couple of years before Lairmore came on board, USAID had granted \$75 million to the Wildlife Health Center to support PREDICT—a program of global disease surveillance to prevent wildlife pathogens from spreading to humans, especially in disease "hot spots." The consortium quickly produced a web-based, open-access map to help governments and health agencies track emerging infectious diseases around the world. That foundational work to better

understand zoonotic pathogens—diseases that pass between animals and humans—proved critical in responding to the COVID-19 pandemic.

Under Lairmore's guidance, the school earned two reaccreditations by the AVMA's Council of Education, expanded faculty, and created new leadership and development opportunities, building the school's academic and administrative foundation.

The school began responding more to social issues that were affecting students and the profession: student debt, mental health, racial disparities, and clinical education workload. That focus on students resulted in increased donor-funded scholarships to lower student debt; the creation of the Career, Leadership and Wellness Center; new business and financial management courses; and expanded mental health resources co-located within the veterinary school's campus.

Lairmore also realized that the school needed fresh approaches to increase diversity, equity and inclusion. Thanks to



5 Dean Mark Stetter, left, and his wife, Kelly, visited Covelo Clinic last November. Makda Asrat, a joint DVM/PhD student, was serving as a coordinator and explained the clinic's operations.

many faculty, staff, student groups and campus leadership, the school has become one of the top three national veterinary schools for student diversity, while creating a community-wide effort to promote social justice.

In 2017, Lairmore worked with Chancellor Gary May and the school's donors to launch a \$500 million Veterinary Medical Center campaign to expand the existing veterinary hospital and continue providing state-of-the-art care. The campaign has built and opened the first facilities, and is moving forward with construction of a new All-Species Imaging Center. (Read more at www.vetmed.ucdavis.edu/giving/vmc.)

The success of the One Health Institute inspired the creation of the Office of Global Programs, which has expanded educational and research opportunities for students and faculty worldwide.

The school also engaged in numerous partnerships, including the unique comparative oncology program within the UC Davis Comprehensive Cancer Center.

Under Lairmore's leadership, the school reached new heights in global recognition, including top placements in *U.S. News & World Report* and QS World University Rankings.

Leading Veterinary Medicine into a New Era

Wildlife veterinarian Dr. Mark Stetter accepted leadership of the school in 2021 as its ninth dean. Stetter brings a fresh approach from his experience as director of animal operations for Walt Disney World for 15 years before his 10-year tenure as dean at Colorado State University. He says

the international reputation of UC Davis as a leader in One Health was a primary attraction for him.

In his first year, Stetter embarked on a listening tour, bringing together constituent groups from around the school to discover the community's greatest needs to foster an environment "where people feel empowered to do their best, and are excited and proud about what they do—a place where workplace culture and climate support diversity, equity, and inclusion."

Stetter and the school's Academic Council have determined four key priorities for the school to push forward immediately:

- **Research:** Determine ways to enhance the school's research portfolio, break down bureaucratic obstacles and incentivize new trans/multi-disciplinary collaborations.
- **Diversity, Equity and Inclusion:** Establish outreach programs that will support a greater presence and inclusion of underrepresented groups in our faculty, staff, and student ranks while developing deeper connections with other DEI efforts on campus and across the profession. (Meet the school's new DEI officer on page 39.)
- **People First:** Build a culture and climate at the school that will increase employee satisfaction and employee engagement.
- **Facility Master Planning:** Update our facility master plan for both short-term and long-term needs.

Despite the ongoing challenges presented by the COVID-19 pandemic, the school celebrated new records in research and philanthropic funding for the 2021–22 fiscal year, with \$89 million received for research and \$61.7 million from generous donors.

1 Dean Emeritus Michael Lairmore celebrates with students after the 2016 commencement ceremony. Photo: Don Preisler

2 PREDICT field teams in Sierra Leone approach mist nets to remove bats for sampling. Photo: Simon Townsley

3 Traci Hayward, Class of 2022, conducted research on the human-animal bond in Thai elephant keepers, thanks to support from the school's Global Programs. Photo courtesy Traci Hayward

4 An oiled grebe is saved after an oil spill at Huntington Beach in 2021, thanks to the Oiled Wildlife Care Network. Photo: OWCN

In addition, the school's scholarship endowment surpassed \$100 million—an important milestone for the long-term support of veterinary education.

As of 2022, UC Davis has graduated more than 7,000 doctors of veterinary medicine, is ranked #1 among the nation's 32 accredited veterinary schools, and has the largest veterinary research program, as well as the largest and most diverse residency program worldwide.

In the prescient words of a prune farmer 75 years ago, UC Davis has become recognized as the leading institution of its kind in the world. The ingenuity and dedication of the individuals who built the foundation of this school continues to be reflected in our research facilities, classrooms, clinics and beyond—making a difference for animals, people and our planet.

Editor's note: Much of the historical information for this article was provided by Dean Pritchard's book "Memoirs of the Luckiest Man in the World," Dean Jasper's booklet "A Short History of the School of Veterinary Medicine," and Dean Osburn's "Reflections on the Past" published online. By no means is this article a comprehensive exploration of 75 years. Readers can dive deeper into particular details at www.vetmed.ucdavis.edu/vet-med-history and view an historical timeline at www.vetmed.ucdavis.edu/index.php/historical-timeline. If you would like to contribute an addition to the historical record, please email tiwood@ucdavis.edu.

Read more about the school's top clinical and research achievements in Clinical Updates on page 26.

*University Archives Photographs, Dept. of Special Collections, General Library, University of California, Davis.

WHAT Genetic Testing

Can and Can't Tell You about Your Pet

By Amy Young

Genetic (or DNA) testing is an easy way to uncover valuable information about your pet—from parentage identification to health screening. UC Davis helped pioneer animal genetic testing in the 1960s and is internationally recognized as an expert in the field today—a field that has rapidly expanded in the last decade. But when and why should you consider a DNA test for your pet?

Genetic Testing 101

Genes are biological instructions, with half of the information contributed by each parent, that make up the unique blueprint of the life (genome) of each individual. Sometimes, small changes (variants) occur. These variants are responsible for differences within and across species. They also make genetic testing possible since tests are designed to look for these differences.

The UC Davis Veterinary Genetics Laboratory (VGL) provides hundreds of genetic tests across 24 species. Most samples received are from horses, dogs, cats, cattle, and goats—and most tests are for parentage and for known variants that cause, or are risk factors for, diseases or influence coat colors.

“Genetic testing is a powerful tool that has been used for decades to preserve the integrity of breeds,” said VGL director Dr. Rebecca Bellone. “Today, it is increasingly utilized by animal owners, breeders, and veterinarians to make informed mating and management decisions.”

The Whys

Breeders utilize genetic tests to evaluate potential parents for specific variants known to affect health. The goal is to make informed breeding decisions to reduce heritable health concerns in breeding populations. If you are acquiring a purebred, research inherited conditions known in the breed, and ask the breeder which tests they run, the status of the animal and/or the status of their parents.

“For recessive conditions, testing can allow people to safely breed carriers to unaffected animals while avoiding producing offspring affected with a devastating disease,” said Dr. Danika Bannasch, the Maxine Adler Endowed Chair in Genetics at UC Davis.

Owners may submit samples for genetic testing to gather information about current or future health concerns. Early diagnosis and appropriate treatments offer the best chances for a positive outcome. Results from genetic testing may guide future management of environmental factors that could trigger disease, such as nutrition, weight, exercise, infection, allergies, surgery, and medication.

In recent years, dog breed identification tests have exploded in popularity. These tests compare your dog’s DNA with a company-specific DNA database from dogs of different breeds and report which breeds are the closest match. Similarly, ancestry testing is available in horses through Texas A&M University, which returns broad results that provide ancestral geographic regions, but generally does not specify the percentage makeup of particular breeds.

Breed or ancestry tests may help determine which genetic tests may be appropriate when the breed is unknown, but it is important to work with your veterinarian before using results to make any medical decisions for your pet.

Coat Color



Parentage

Performance

Disorders

HISTORICAL TIMELINE OF ANIMAL DNA TESTING AT UC DAVIS



1950s

Dr. Clyde Stormont establishes the Serology Laboratory to verify parentage with blood typing analysis for cattle registries. The lab was later renamed the Veterinary Genetics Laboratory (VGL).



1970s

The VGL becomes a member of the International Society of Animal Genetics (ISAG), which supports data and methods comparison for animal parentage laboratories.



1960s

Blood typing is developed for horses to verify parentage for registries.



1980s

Blood typing for parentage is developed for llamas and alpacas.

The Hows

You have likely heard about human genetic testing services such as 23andMe® or AncestryDNA®. You may have even submitted a sample and received reports about your unique genetic makeup. Human and animal DNA is very similar, so the same molecular technologies can be used across species.

DNA is stored in the cell nucleus. To extract DNA for testing, samples have to contain cells that have a nucleus—white blood cells, epithelial cells, etc. For dogs and cats, DNA samples are usually collected from cheek swabs. Hair samples are commonly submitted for DNA testing in horses, cattle, and other livestock. These samples are easy to collect and can be shipped to the laboratory without any special packaging.

There is no upper or lower age limit for DNA testing, but there are some caveats when sampling very young animals. The VGL provides instructions for sample collection, along with easy-to-follow pictures and videos on their website: www.vgl.ucdavis.edu/sample-collection.

The Limits

Genetic testing is powerful technology, but it is important to work with your veterinarian to interpret results, especially when making medical decisions. Misinterpretation or over-interpretation of results in the absence of appropriate context and knowledgeable counseling can be problematic.

Animal genetic testing has followed advances in human genetic testing, but unlike in people, animal genetic testing is not regulated. Many veterinarians and scientists urge caution when it comes to direct-to-consumer genetic tests since there are no industry-wide standards and companies do not disclose their methodologies or quality controls.

An advantage of testing through the VGL is that the laboratory adheres to strict quality controls and only offers scientifically validated tests. It also boasts ISO/IEC 17025 accreditation by the American National Standards Institute National Accreditation Board (ANAB), the highest level of accreditation available to testing laboratories.



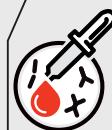
1990s

The VGL begins developing parentage tests using DNA markers (microsatellites) and becomes the first animal parentage laboratory to offer DNA testing to the horse, cattle, and camelid industries. In response to inquiries, VGL begins development of a small-scale veterinary forensics program.



2010s

The VGL becomes the first accredited forensics crime lab dedicated to domestic animal DNA analysis. International Standards Organization and International Electrotechnical Commission (ISO/IEC) accreditation is through the ANSI National Accreditation Board (ANAB) Forensics program. Many additional tests for inherited disorders and traits of interest are added for dogs, cats and horses as discoveries are made.



2000s

The VGL begins to add DNA diagnostic testing for traits of interest and health traits to its testing portfolio.



2020s

The VGL provides animal parentage verification, identification, forensic services, genetic diagnostic testing, and genetic research across species. Today, the VGL offers DNA tests for more than 24 species and research testing services for several others. As of 2020, the VGL achieved the ISO/IEC 17025 accreditation by the American National Standards Institute National Accreditation Board (ANAB), the highest level of accreditation available to testing laboratories.

Annual ANAB assessment ensures clients can be confident in the exceptional testing services provided.

"The VGL is committed to providing accurate results," said Bellone. "We employ many quality control checks throughout our accredited testing procedures to ensure the highest level of accuracy."

The Future

Most available genetic tests screen for conditions and traits caused by a single variant. However, many diseases, such as hip dysplasia, are caused by more than one gene, or result from interactions between genes and the environment. Research on many of these conditions is underway.

In the future, genetic information from DNA tests could be combined with other diagnostics to create treatment and management plans targeted specifically to your pet's biology. This precision medicine approach could maximize the effectiveness of medications, minimize side effects, and lead to faster resolution or stabilization of health conditions.

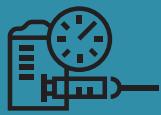
"For complex diseases, it is important to consider the roles of genetics and the environment," said Dr. Carrie Finno, professor of genetics and director of the UC Davis Center for Equine Health.

"Our Pioneer 100 Horse Health Project leverages multi-omics technologies (genomics, proteomics, metabolomics, etc.) and medical records over time. The goal

is to determine, for example, how a patient will respond to one drug versus another to target treatments for optimal outcomes."

Research investments, growing consumer interest, and continued advancement in scientific discoveries suggest that the use of genetic testing will continue to rise, especially in pets. A 2021 report by Global Market Insights, Inc. projected that the animal genetics market will exceed \$6.4 billion by 2027, with the canine sector leading the way. Further research and education are needed to help owners utilize genetic testing results and enable veterinarians to provide genetic counseling.

You can contact the VGL at:
www.vgl.ucdavis.edu/
(530) 752-2211



Day in the Life

Forging a Path for 40 Years

By Trina Wood

Photography by Vu Dao



Dr. Don Jones '74 knew from a young age that he wanted to combine his passion for animals and science. But when he completed a vocational report on veterinary medicine in junior high, he was told he wouldn't get accepted to veterinary school in California and would have to attend Tuskegee University—the historically all-black school in Alabama—if that was his chosen career path.

By the time Jones graduated from high school in Southern California in the late 60s, society had changed. The country was experiencing turbulent times with Vietnam war protests and civil rights movements in full swing. Affirmative action had also been initiated to improve opportunities for people of color.

Jones entered veterinary school at UC Davis in 1970, two years into his undergraduate degree as one of only two Black students in his class. Jones said he thinks affirmative action helped him gain entrance. But it was his hard work and determination that garnered him the Upjohn Award for clinical proficiency during his senior year.

At the time, DVM students hadn't yet started choosing tracks such as small or large animal or zoological medicine. So, when Jones graduated cum laude and took his first job at Adobe Veterinary Hospital, a mixed practice in Los Altos, he had the opportunity

to practice large animal medicine—delivering lambs in a barn and sewing up barbed wire cuts on a horse—in addition to caring for companion cats and dogs.

That style of doing everything became impractical however, when Jones decided to establish his own clinic several years later. He purchased an old building in South Los Altos that had once been a bike shop and remodeled it into a veterinary hospital. His son, Andrew (who had been born a year before the rigors of veterinary school), helped him build a sign and they hung up their shingle for business. Jones ran the practice there for about 10 years before he sold the building and built a slightly larger hospital. Andrew followed in his dad's footsteps, obtained his DVM from UC Davis in 1995, and now practices in Pismo Beach as a radiologist in a small animal practice.

What Jones didn't have in terms of experience during the early years of his

career, he took continuing courses to learn or found textbooks to show him new surgical techniques. On the business side of things, he took management courses to learn how to run a practice and hired part-time veterinarians to help.

After selling his practice, Jones became a VCA medical director for a few years until he joined the Animal Doctors Veterinary Hospital in Palo Alto nearly a decade ago. He now works two days a week with Dr. Greg Bogatsky '06, another UC Davis alum who has owned the hospital for the past five years.

After a successful career spanning more than four decades, Jones said one of the appeals of his profession has been wearing many hats.

Continued on page 22 ►



◀ Dr. Don Jones '74 examines Zoey's teeth as part of an annual exam.

Chloe has been a patient of Dr. Don Jones for the past 13 years, since her family adopted her as a young dog. "I'm a human doctor and I appreciate Dr. Jones' bedside manner," said Carol, Chloe's owner. "He's empathetic, clear and reasonable." Grisel, a veterinary technician at Animal Doctors, assists Jones as he checks Chloe's reflexes.

9:30 am



Kirby, a 12-year-old border collie mix, has been a patient at Animal Doctors since she was a pup. Her owner, Lauren, expresses concern about a sunken spot on top of her head. Jones recommends taking it one step at a time, starting with an anti-inflammatory for two weeks and a bloodwork panel before putting Kirby under anesthesia to get an X-ray. "Examining an older, larger dog can be a bit of a workout!" Jones said.

Jones is famous for constantly asking, "Where's my coffee?"

10:00 am

10:30 am



Smudge, a 6-year-old yellow lab, has been a patient at Animal Doctors for the past five years, since his owner, Meera, moved back to the Bay Area from Seattle where she got him as a puppy. Jones examines his hip and knee joints, and reviews previous X-rays, but doesn't see an obvious cause for Smudge's mild rear limp. As it could be a minor muscle injury in the hip area from energetic play, Jones suggests leash walks and no jumping around for several weeks.

11:00 am



Jones gets some help from veterinary assistants, Angie and Karen (with bandana), as he administers a light sedative to Cheese, a 12-year-old pug, to examine his throat more thoroughly.

Lunchtime is often spent grabbing a quick bite at his desk, consulting on a case with Dr. Greg Bogatsky, or looking up information that could help guide treatment. Jones checks a skin cytology slide, looking for evidence of a bacterial infection in one of his patients.

11:30 am

12:30 pm

"As a veterinarian—especially in the early days of my career—I could be a surgeon, a dermatologist, a radiologist, a dentist and an internist all in the same day," Jones said. "I enjoyed doing it all."

When asked if he considers fully retiring, Jones chuckled.

"It's hard to let go of this profession when it's been your life. What more would I do? I don't like golf, and I can only fish and play for so long! I've seen retired colleagues lose their joy. For now, the work is still challenging and I always enjoy continuing education and my clients. I don't have to hire, fire or worry about overhead expenses anymore—I just get to do what I enjoy."

Bogatsky is grateful for the help of a seasoned professional.

"Having the experience of Dr. Jones in the clinic has been great. He's the most even-keeled veterinarian I've ever worked with," Bogatsky said.

Jones said he has witnessed many changes in the profession since his years in school, especially the shift to specialization. By the time he started his first hospital, mixed

practices were beginning to disappear. Vaccine clinics had begun popping up and that changed the profit margin schedule for privately owned clinics.

At the same time, office visits and surgery costs grew due to expanded technology—but also became safer. In the early years, most clinics couldn't afford to have an EKG machine, so they shared equipment. UC Davis was the only full-service specialty hospital, but Jones said they couldn't always wait to get patients there.

"A lot of clinics refer special cases now; that is the standard of care. But we didn't always have that option," Jones said. "We did our own emergency surgeries—often in the middle of the night."

Thankfully, in the 1990s, the Peninsula veterinary community formed an emergency clinic for veterinarians working in the area and they all had a share in it. They hired ER specialty veterinarians so they could refer emergency night calls to the specialty clinic.

"That created a huge shift in quality of life for single practitioners—it made life easier!" Jones said.

While technology improvements have led to greater quality of care, Jones is also concerned about the increased cost in veterinary care.

"It's hard for many to pay thousands of dollars for a surgery," Jones said. "Insurance has made that easier, but not everyone has it. Veterinary medicine has become more like human medicine and I've seen people who will spare no expense on their pet."

Jones doesn't do a lot of surgeries these days (there's not as much demand where he works). He sees more patients for age-related issues and general health concerns. His favorite part of practicing now is getting a challenging internal medicine case.

"I like to be presented with a case where I wonder, what the heck is going on here?" Jones said. "Those cases are fun."

When Jones does take a day to slow down, he enjoys flyfishing—which he took up when he first thought he would retire many years ago—as well as reading and spending time with his many grandchildren.



Bogatsky asks Jones to assist him with examining Oswald, a Bernese Mountain dog, for a major limp in his left hind leg. Veterinary technicians Eddy (foreground) and Grisel also lend a hand.



In one of his last appointments for the day, Jones meets Cooley, a four-year-old Irish doodle and Zooey, an 11-year-old Cavapoo. This is their first visit to establish care at a new clinic after a move from Baltimore. Hiking and walking in a new environment has brought on some slight allergies for the two. Zooey is also slated for future dental work.

1:00 pm

2:00 pm



Philanthropy at Work

By Carolyn Sawai

Junior Philanthropists Making a Difference

Giving from the Heart



Bobby enjoys playing with O.G. in the decorated bed that he and Liv made for her. At right, Liv loves to snuggle with their cat. Courtesy photos

Bobby Davenport (6) and his sister, Liv (8), have a special place in their hearts for animals—especially cats.

"Kitties are my favorite because they are very cute," Bobby said.

Their first cat, Alfie, was an affectionate Siamese mix who liked to snuggle. After he passed away in 2021, the Davenport family went to an adoption event in Napa, California for Whiskers, Tails and Ferals—a local rescue organization. Liv told volunteers she was looking for a "Siamese snuggle cat."

Liv got her wish and found the perfect feline companion, who she named Olivia Grace (also known as O.G.)—a total lap cat who likes to sleep with her. O.G. had been in bad shape when she first arrived at the rescue and received life-saving treatment at the UC Davis veterinary hospital before she was ready for adoption.

The Davenport family also had another cat, Jazzy, who was pregnant when she was found as a stray. They fostered Jazzy after her kittens were adopted and decided to give her a forever home since she was too frightened to go to adoption events.

Last December, Jazzy was ill and needed urgent end-of-life care. However, her local veterinary clinic was closed. Since Bobby and Liv wanted to be with Jazzy in her final moments, their mother Eve contacted the UC Davis veterinary hospital. She was grateful that the hospital was able to accommodate her family and provide a peaceful and caring environment where they could say goodbye to Jazzy and comfort her in her final moments.

When it was getting close to the end of the year, Eve asked her children what they wanted to do with the \$20 they had saved from their allowances.

"Bobby and Liv chose to donate it to the kind veterinarians, staff and students at the UC Davis veterinary hospital who helped Jazzy and O.G.," Eve said. "We are so grateful to them!"

Bobby drew this illustration to thank the veterinary hospital for the wonderful care they provided for Jazzy and O.G.



Protecting the Salish Sea



Rose taking photos at Titlow Beach along the Salish Sea.

Sisters Rose (11) and Hazel (8) Holmes have always enjoyed exploring the outdoors. When they still lived in Montana, Rose wanted to learn about saltwater ecosystems, despite not having direct access to the sea.

Inspired by her teacher, Rose borrowed the book *Explore the Salish Sea: A Nature Guide for Kids* from another classroom. Published by the SeaDoc Society, this book is filled with full-color photography and non-fiction narrative that inspires outdoor exploration of the area. She and Hazel also viewed all the videos produced by SeaDoc.

Founded in 2000, the SeaDoc Society conducts and sponsors vital scientific research in the inland waters of the Pacific

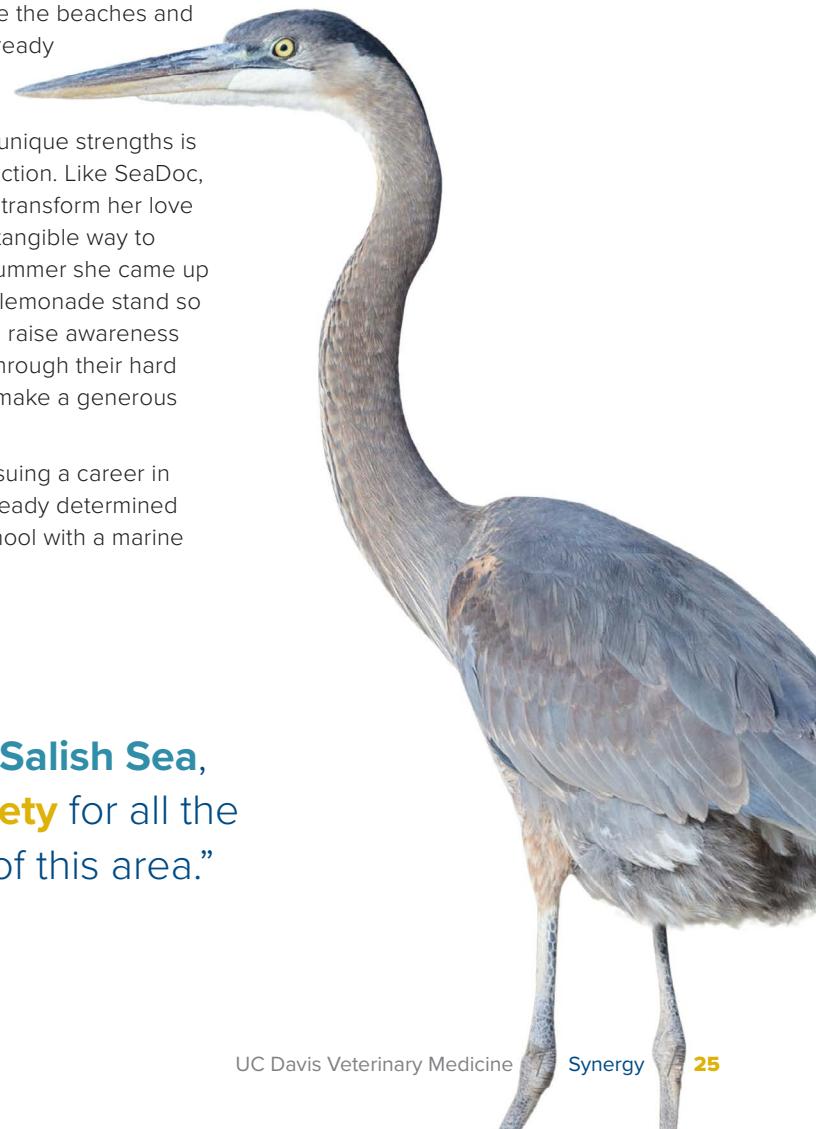
Northwest, also known as the Salish Sea. This rich and vibrant ecosystem is home to 37 species of mammals, 172 species of birds, 253 species of fish and more than 3,000 species of invertebrates. Nearly eight million people make this region their home today while billions of dollars are generated annually by Salish Sea commercial and recreational activities.

When their family moved to Washington state in 2021, Rose and Hazel were thrilled. They could finally explore the beaches and environment they had already grown to love thanks to SeaDoc's outreach. One of the SeaDoc Society's unique strengths is translating science into action. Like SeaDoc, Rose was determined to transform her love for the Salish Sea into a tangible way to support its health. Last summer she came up with the idea to set up a lemonade stand so that she and Hazel could raise awareness and funds for SeaDoc. Through their hard work, they were able to make a generous donation of \$30.

Rose is interested in pursuing a career in marine biology and is already determined to attend a local high school with a marine biology program.



Rose (left) and Hazel enjoy a hike at Cape Alava in Washington's Olympic National Park. Courtesy photos



“It was super great to learn about the Salish Sea, I just want to thank the SeaDoc Society for all the work they do to ensure the health of this area.”

– Rose Holmes



By Rob Warren

Top Clinical & Research Accomplishments Over 75 Years

Since 1948, the school's faculty, staff, and students have made significant breakthroughs in research studies and clinical applications—from vaccine development for devastating livestock diseases to using stem cells in regenerative medicine. Their work has changed the world and laid the groundwork for future veterinarians to expand on their advances. On the 75th anniversary of the school's opening, we celebrate those achievements by highlighting several key accomplishments.



Dr. John D. Wheat (left) delivers medicine to a Guernsey bull through a stomach tube in 1950 with the help of Dr. Hugh S. Cameron.*

David Gilhooly, a student in the first Class of 1952, gives an ailing sheep a worm remedy orally through a syringe.*



1

Optimizing Livestock Health

When the UC Davis School of Veterinary Medicine was initially established, improving livestock health through research and clinical care was of paramount concern. Several significant breakthroughs occurred in livestock health, including:

- ◆ The first intradermal skin test for bovine tuberculosis was developed and helped reduce bovine TB to less than two-tenths of one percent in U.S. cattle. Research of a vaccine's efficacy led to almost universal use of this immunization to help control brucellosis, a contagious disease that can wipe out entire herds of livestock.
- ◆ In 1954, the school created the first of several vaccines to combat bluetongue virus, an infectious sheep disease. Ongoing research produced a more effective enzyme-linked immunoassay diagnostic test in 1990 and an improved vaccine, along with a better understanding of the environmental and economic impacts of bluetongue on the international livestock trade.

- ◆ Blood-typing services for livestock owners and breed associations were initiated in 1955. Services have evolved into DNA-based technology for many species to identify individual animals, verify parentage, and detect inherited diseases or other traits.
- ◆ Fifty years of research into foothill abortion (epizootic bovine abortion)—first recognized in California in the 1930s—facilitated a better understanding of the disease and culminated in veterinary scientists developing a vaccine that became commercially available in 2020. Throughout the decades, foothill abortion resulted in the death of tens of thousands of calves annually and was a major economic burden for Western beef producers. The tick-transmitted bacterial disease affects pregnant cattle that graze in the foothill or mountainous regions of California, Northern Nevada, and Southern Oregon.

Students attend a lecture on poultry medicine in the early years of the veterinary school.*



- ◆ Faculty determined in 1974 that *Pasteurella* bacteria was the source of pneumonia that was causing the majority of cattle deaths in feedlots. The finding led to better industry standards for beef cattle health and well-being.
- ◆ The school opened the Veterinary Medicine Teaching and Research Center in Tulare in 1983 to conduct applied research at the hub of the U.S. dairy and beef industry. The creation of the J-5 mastitis vaccine in 1998 came from this venture, improving animal health and saving dairy producers \$11 million annually. The center also offers unique opportunities for specialized training and provides comprehensive veterinary services to regional dairy clients.

- ◆ In 1990, faculty identified the *Neospora* parasite as the major cause of abortion in dairy cattle, which was causing the cattle industry an estimated \$35 million a year.
- ◆ In 2006, the school partnered with Lawrence Livermore National Laboratory, the U.S. Department of Homeland Security, and the U.S. Department of Agriculture to develop a rapid diagnostic test that simultaneously tests for foot-and-mouth disease (FMD) and six other look-alike diseases in livestock. The new test reduces the period for diagnosing all seven diseases from days to hours. If an outbreak occurred in the U.S., it is estimated that up to \$3 million in direct costs would be lost for every hour's delay in diagnosing FMD.

2 Combating Newcastle Disease

In 1948, faculty researching Newcastle disease in chickens worked with colleagues at the California Department of Fish & Game (now Wildlife) to determine that virus particles can be recovered from the air as a result of natural infection. The team developed methods for diagnosis and mass immunization by aerosol vaccination, preventing heavy losses in flocks throughout California and other states. Over the decades, this would prove extremely valuable to poultry producers. In 2003, Veterinary Medicine Extension and California Animal Health and Food Safety Laboratory faculty members helped a U.S. Department of Agriculture task force curtail an outbreak of exotic Newcastle disease. Faculty built trust with backyard bird enthusiasts, while laboratory specialists developed sophisticated informatics to track the outbreak in real time. New cases were quickly identified, and researchers developed a rapid diagnostic test that prevented unnecessary destruction of flocks. Due to these efforts, the outbreak was contained two years sooner than expected, saving poultry producers more than \$500 million.

Since 1948, the school's faculty, staff, and students have made significant breakthroughs in research studies and clinical applications.

*The precursor to the California National Primate Research Center opened in 1962. Researchers have investigated many diseases that translate directly to human health.**



Dr. Niels Pedersen devoted a half century to finding a treatment for FIP.

For the past 70 years, UC Davis has set the standard for excellence in veterinary genetic testing.

3 Advancing Immunodeficiency Virus Research
In the early 1980s, medical and veterinary school researchers at the UC Davis California National Primate Research Center investigated an unusual outbreak of immune deficiency that was occurring in a group of rhesus monkeys housed at the center. At about the same time, a new and deadly disease was appearing around the world in humans that would become known as acquired immune deficiency syndrome (AIDS). In 1984, UC Davis researchers demonstrated that the immune deficiency disorder in the rhesus monkeys resulted from an infectious agent, named simian retrovirus. This led to the identification of another retrovirus, simian immunodeficiency virus. By the early 1990s, UC Davis veterinary researchers identified a similar viral disease in cats, which would become known as feline immunodeficiency virus. These are the earliest animal models for AIDS research and were used to study treatments and vaccines for HIV/AIDS.

4 Curing Feline Infectious Peritonitis

Following 50 years of research by UC Davis veterinary scientists, the antiviral drug GS-441524 was discovered to be a cure for feline infectious peritonitis (FIP) in 2019. Up to 95% of cats diagnosed with FIP die without treatment. Cats can develop FIP at any age, but it is usually diagnosed in cats between 6 months and 2 years of age. It is one of the most common causes of death in young cats. Unfortunately, the manufacturer of GS-441524 chose not to market the drug for veterinary purposes, even though thousands of cats with FIP worldwide have been successfully treated with a black-market version of the drug in the past three years. Currently, there remains no successful treatment approved for veterinarians in the U.S., but UC Davis continues its research with new clinical trials of GS-441524 and other treatment applications.



Cathy Bowen, a hemodialysis technician, watches over her patients.



5 Leading Renal Medicine

For nearly 50 years, UC Davis has been a leader in renal medicine with its early development of hemodialysis in the 1970s and 1980s and its ongoing advancement to the present. UC Davis established the world's first hemodialysis and extracorporeal center in 1993 and the first advanced training programs for extracorporeal therapies (hemodialysis, hemoperfusion, and therapeutic apheresis) in 1995. For the next two decades, UC Davis was one of only a handful of veterinary facilities worldwide to offer advanced extracorporeal medicine. It remained the only program in California until the creation of the second UC Davis extracorporeal program at the UC Veterinary Medical Center-San Diego in 2000. In 2014, the UC Davis Hemodialysis Academy was established, delivering instruction on the theory and applications of hemodialysis and extracorporeal therapies to more than 600 veterinarians from 32 countries. Today, UC Davis is recognized as the most iconic and advanced extracorporeal therapies program worldwide.

6 Setting Genetic Testing Standards

The Veterinary Genetics Laboratory (VGL) was established in 1955 to verify parentage for cattle registries. For the next 70 years, VGL set the standard for excellence in veterinary genetic testing. The laboratory now provides testing for more than 20 species, while also contributing to education and research. In the early 1990s, VGL became one of the first laboratories to use DNA markers for parentage verification. Shortly thereafter, the discovery of genetic causes for heritable disorders was unraveled, making DNA testing available for diagnostic purposes. In the past decade, advanced tools have accelerated the discovery of genetic variants behind traits of interest, enabling marker-assisted mate selection and providing tools to inform clinical management decisions. Today, the VGL offers more than 220 genetic tests for various coat color and production traits, genetic disorders, and parentage verification of several animal species to clients around the world.

*Professor Clyde Stormont was a member of the school's founding faculty and was renowned for his pioneering work in genetics and serology. He established the lab that became the Veterinary Genetics Laboratory.**

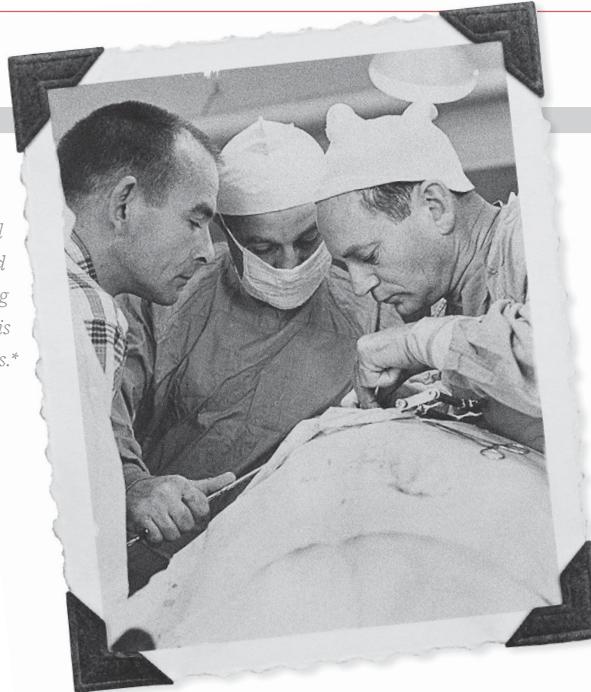


Professor Louis Holm (left) was a founding faculty member; he also served as assistant pharmacist in the Agricultural Experimental Station. Holm played a pioneering role in establishing veterinary physiology at UC Davis during the '50s.*

Drs. Quinton Rogers and Claudia Kirk hold kittens involved in a nutrition study.*

The UC Davis veterinary hospital hosts the **largest residency training program in the world in more than 35 specialties.**

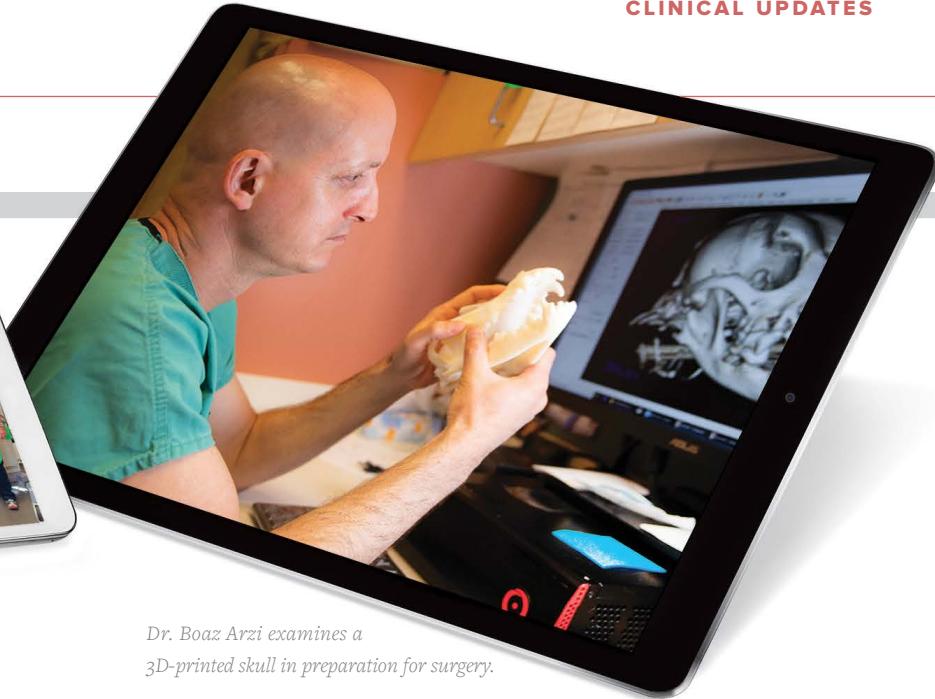
7 Critically Improving Feline Nutrition
In 1987, UC Davis veterinary cardiologists and nutritionists discovered a link between feline dilated cardiomyopathy (DCM) and a lack of dietary taurine, an essential amino acid in cats, in conventional pet foods. The research resulted in multiple initial descriptions of essential amino acids in the feline diet and how nutrition affects the health of cats, ultimately leading to the supplementation of commercial feline diets with adequate taurine. Non-hereditary feline DCM was common in the overall cat population prior to this discovery but has since become a rarely seen disease in properly nourished cats. Adding taurine to commercial cat foods reversed the problem and saved thousands of cats' lives.



8 Pioneering Surgical Techniques
In 1950, the placement of pins in fractured bones was first described at UC Davis. Used for more than 20 years, this method was the precursor to more modern techniques. Many other surgical procedures and instruments were developed at the school during that era, including the first surgery of a shoulder muscle, a novel repair of a dog's ruptured anterior cruciate ligament, and the first practical total hip replacement—an early One Health effort before the term "One Health" existed due to a collaboration of veterinary surgeons, physicians, and engineers. These innovations created the framework for cutting-edge orthopedic surgeries being performed today, including custom 3D-printed titanium hip replacements.



Zoological medicine is one of the specialties pioneered at UC Davis.



Dr. Boaz Arzi examines a 3D-printed skull in preparation for surgery.

9 Educating Veterinary Specialists

In 1968, the groundwork was laid for the first veterinary training programs in the impending 1970 opening of the Veterinary Medical Teaching Hospital (VMTH), the first of its kind in the U.S. Soon after, residencies were established in many disciplines, including internal medicine, emergency medicine, avian medicine, anesthesiology, dermatology, zoological medicine, behavior, and many others. These innovative programs at the VMTH set milestones in advanced training programs for residents and led to the modern-day House Officer Program at UC Davis, the largest veterinary training program in the nation. Annually, more than 120 veterinarians now train in residencies, fellowships, and internships in more than 35 specialty disciplines. To this day, the VMTH remains the gold standard of teaching hospitals and is one of the largest veterinary hospitals in the world.

10 The Power of Regenerative Medicine

The advancement of regenerative medicine—the application of stem cell biotechnology or tissue engineering to aid in the repair of injured tissue—has taken veterinary medicine to new heights over the past two decades and is foreshadowing the future of injury repair in humans. Oral and orthopedic surgeons are realizing the full potential of bone morphogenetic protein to regrow dog jaw and leg bones; neurosurgeons are pioneering a stem cell treatment for spina bifida in bulldogs that led to a world's first application of an in-vitro treatment for the disease in babies; equine lameness specialists are utilizing stem cells to repair ligament damage in racehorses, which may hold similar healing powers for injuries in human athletes; and feline chronic gingivostomatitis (which affects as many as 1 in 7 cats) is being cured thanks to a stem cell therapy that may soon be available as a packaged treatment product. The school's Veterinary Institute for Regenerative Cures and the Veterinary Center for Clinical Trials are moving these and other initiatives forward, as the future of veterinary medicine is being shaped at UC Davis.

Stay tuned for our Fall 2023 issue of *Synergy* to learn more about these and other future clinical and research advances.

*University Archives Photographs,
Dept. of Special Collections, General Library,
University of California, Davis.

In the Spotlight

Over the years, many of UC Davis veterinary hospital's patients have been featured in national and international news coverage. Their success stories were made possible by the dedicated teams of clinicians, staff and students who provide compassionate care on a daily basis.



Kabang

Kabang, a shepherd mix dog, was brought to UC Davis from the Philippines in October 2012 for surgery to repair massive facial wounds caused when her snout was torn from her face after being hit by a motorcycle. Sources claim she ran into the motorcycle to save two children in her family. With insufficient local veterinary care to treat her extensive injuries, Kabang was brought to UC Davis, where it was also discovered that she had heartworm disease and a type of infectious cancer. Treatment for both was necessary before her facial wounds could be addressed. She stayed with local caregivers and was successfully treated at UC Davis until June 2013. Kabang's story was a worldwide phenomenon, covered by more than 1,000 media outlets on six continents.



Irish Streetsinger

In 2016, Thoroughbred Irish Streetsinger showed lameness while training. She became one of the first horses scanned using positron emission tomography (PET), an imaging technology pioneered at UC Davis. The PET scans picked up injuries not seen on other forms of diagnostic imaging, helping to better plan treatment and recovery procedures. By late 2017, Irish Streetsinger returned to racing, winning at Golden Gate Fields in 2018. Her journey was covered by *Equine Chronicle*, *HorseTalk* and other horse health publications.



Mayson

During the 2019 Camp Fire that devastated Paradise, California, Mayson the tabby cat panicked and escaped from his carrier and owner during a frantic evacuation. A week later, his owner saw his picture in a Facebook post from UC Davis veterinary school trying to identify owners of dozens of other injured cats that had been brought to the hospital for care. The Today Show featured a video of the joyful reunion between him and his owner. Their story was covered in the *Washington Post*, *BuzzFeed News*, the *Huffington Post*, *CBS News*, *Yahoo News*, and *The Dodo* among hundreds of other media outlets. Fortunately, Mayson recovered fully from burns to his paws.



Pickles

In 2017, Pickles the potbellied pig needed a blood transfusion to survive. His owner turned to the internet and found a 450-pound pig for sale, which she promptly bought and arranged for immediate transport to UC Davis.

Photo: Maddie Johnson



Vanilla Bean

In 2015, several UC Davis clinicians collaborated on an extremely rare heart surgery on Vanilla Bean. Blood flow through the cat's heart chambers was restricted and needed correction. The case truly highlighted UC Davis' collaborative and compassionate care, as well as the value of being treated at a large research university's teaching hospital. The *New York Times* and *CBS News* took notice, as did dozens of local newspapers and television newscasts from around the country.



Madonna

In 2018, UC Davis veterinarians performed surgery on Madonna the koi to remove a softball-sized tumor from her abdomen. The tumor was nearly half the fish's total body weight. Madonna recovered at the university for several weeks before returning to her home pond. *Veterinary Practice News* ran a feature article on the procedure, and the *Times of San Diego* published the news as part of a larger spread on fish surgeries.

Regrowing Bones

Little more than a decade has passed since a collaborative research team at UC Davis pioneered the use of bone morphogenic protein (BMP) to regrow sections of canine jawbones due to trauma or removal of cancerous tumors. The team, comprised of veterinary surgeons and biomedical engineers, expanded the early technique and have now successfully regrown a full mandibular arch as well as areas of a leg bone. The dogs below represent four of approximately 100 cases to date.



Cinders

Following California wildfires in 2017, UC Davis veterinarians started treating burned animals with a novel approach pioneered by physicians in South America—covering their wounds with tilapia fish skin as a biological bandage. Collagen in the fish skin—sutured to an animal's burns—hastens healing. Its first use on bears and mountain lions was covered by *Reuters*, *ABC News*, and *NPR*, prompting the team to be summoned to England in 2018 to treat a horse dubbed Cinderella or “Cinders” for short, whose face was burned by acid. The story became national news on the BBC and dozens of other English media. The procedure would later be used to treat a dog in Alaska (2019), marsupials in Australia (2020), and a total of 13 species worldwide.



Whiskey

In 2012, Whiskey was one of the first dogs in the world to have a section of his mandible regrown using bone morphogenetic protein (BMP) to stimulate new growth. The procedure, pioneered and exclusively performed at UC Davis, stimulates the remaining jawbone to grow new bone cells, eventually filling the entire removed section (due to injury or disease—cancer in Whiskey's case) and integrating with the native bone. Whiskey was featured in the *New York Times*, as well as many veterinary publications and California newscasts.



Frankie

In 2012, a severely injured terrier was found by campers in the woods of Northern California. Upon arrival at UC Davis, veterinarians found three fractures in a paw, a gunshot wound fracture of his mandible, several gunshot pellets in his face, a healed injury to his cornea, and cataracts in both eyes. Dental surgeons used BMP to regrow his nearly shattered jaw. After cataract surgery restored his sight and his other injuries healed, the lucky pup found a new forever home and was named Frankie. His long journey back to health was featured in an extensive *Los Angeles Times* feature on the UC Davis veterinary hospital.



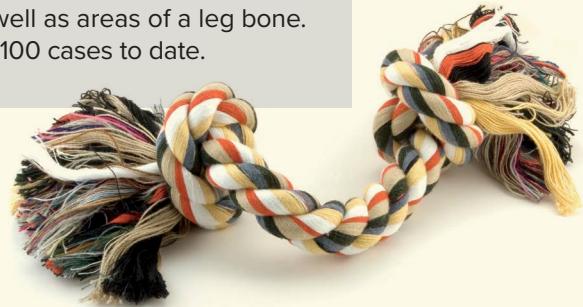
Hoshi

In 2013, Hoshi the collie traveled from Montana to UC Davis to become one of the first dogs to have a full mandible arch regrown using the BMP procedure. Previous success with BMP allowed for the procedure to be expanded to more than just small sections of the jawbone. Cancer caused most of Hoshi's lower jawbone to be removed, but since there was still healthy bone on each far side, the entire arch was regrown. Hoshi's hometown veterinarian was delighted to read her story in *Veterinary Practice News*.



Ethel

Following the success of BMP to regrow jawbones, the procedure was used on Ethel's broken leg in 2018. The 2-year-old Yorkshire terrier severely fractured her right ulna and radius, and several surgeries failed to heal the injuries. While UC Davis surgeons estimated there was only a 1% chance to save the leg, the BMP procedure worked, and Ethel walked again after several months of hospitalization. *DVM360* chronicled Ethel's case, stating BMP “works wonders.”





Veterinary Medical Center



The new Dentistry and Oral Surgery Service suite at the UC Davis veterinary hospital will include three distinct clinical areas as well as administrative space.

Dr. Boaz Arzi (center background) oversees a dental procedure.
Photo: Don Preisler

Dentistry and Oral Surgical Care Expands

By Rob Warren

From left, Drs. Stephanie Goldschmidt, Boaz Arzi, and Maria Soltero-Rivera of the Dentistry and Oral Surgery Service.
Photo: Mike Bannasch



The future UC Davis Veterinary Medical Center aims to lead the way in innovation and discovery and apply that knowledge to cutting-edge compassionate care. That goal is coming to life with the creation of a new Dentistry and Oral Surgery Service (DOSS) suite. Expected to open by late 2023, the suite will allow faculty to maximize their expertise and interest, and make patient care more personal and accessible.

Fine Tuning the Specialty

With the recent additions of Drs. Stephanie Goldschmidt and Maria Soltero-Rivera—along with Service Chief Dr. Boaz Arzi—DOSS has increased its expertise and expanded possible treatment options. While all three faculty will continue to cover many aspects of the clinic, the advancement, research, and leadership of certain disease/injury areas are now being divided into three sub-specialties. Arzi will lead temporomandibular joint/trauma and reconstructive surgeries; Goldschmidt will focus on surgical oncology aspects of the service; and Soltero-Rivera will concentrate on oral medicine, such as the group's breakthroughs in stomatitis care.

"With the recent start of our monthly Stomatitis Clinic and the imminent opening of this new space, it's an exciting time to be part of this team," said Soltero-Rivera. "I look forward to what this means for the advancement of our specialty areas."

DOSS is already considered highly specialized—performing unique procedures not found at most other teaching hospitals—but the increased space will allow the team to be even more sub-specialized in their disciplines.

"UC Davis has always been considered a leader in dentistry and oral/maxillofacial surgeries," said Arzi. "That began with Dr. Frank Verstraete's pioneering work and vision for this service, and its ongoing success is dependent upon us advancing that foundation. This new space will allow us to continue spearheading the field and further advance those sub-specialties, ultimately leading to increased levels of patient care beyond its current status."

Advantages of New Space

With three independent dental care/oral surgery preparatory spaces, the suite will also allow for more private clinical care. Each area will resemble a human dentistry/oral surgery suite where personalized care is performed independently of other patients or administrative functions. Currently, being in one open space limits the ability to perform a routine recheck or receiving appointment while an oral surgery is taking place on another patient. Additionally, a separate administrative area will be incorporated into the suite.

"Physical separation of administrative duties and patient care is extremely limited in our current space," said Arzi. "I'm looking

forward to a relaxed setting to meet with clients, which is important when discussing critical aspects of a pet's care."

The new suite, designed to be 150% larger than the current DOSS space, will also improve faculty and staff welfare and well-being. The current space, with its combined patient care and workspace areas, restricts the use of drinking water and other personal care items. That separate administrative area will be available for dedicated breaks or brief respites between patients.

Improved Resident and Student Training

A residency with DOSS has always been considered one of the premier advanced training opportunities in the country. Additionally, UC Davis DVM students are exposed to more dentistry and oral medicine/surgery cases than at any other veterinary school. Arzi, Goldschmidt, and Soltero-Rivera all completed their residencies at different universities, bringing three different training modules to their faculty responsibilities.

"Combining our three backgrounds brings a diverse and well-rounded education and training to our students and residents," said Goldschmidt. "Those future veterinarians and specialists will experience more patient care opportunities with this new suite."

To learn more about the VMC, please contact our Advancement team at 530-752-7024.



Honors and Awards

Danika Bannasch, DVM, PhD, and Pamela Lein, PhD,

were elected as fellows of the American Association for the Advancement of Science (AAAS). AAAS fellows are selected based on their achievements across a range of disciplines, from research and teaching to administrative roles. Bannasch was chosen for “contributions across the study of genetics and genomics for the benefit of animal and human health, and service to the profession.” Lein was honored “for exceptional contributions to research in environmental toxicity and for sustained activity in advising and mentoring.”

Chelsea Chiv, a third-year veterinary student, has been honored with the 2023 Merck Animal Health Diversity Leadership Scholarship from the American Association of Veterinary Medical Colleges (AAVMC). In her award letter, the AAVMC’s CEO Andrew McCabe noted that Chiv’s selection is a measure of her commitment to addressing inequities and underrepresentation in veterinary medicine, and advocating for social justice.

Melanie Gareau, PhD, and Karen Shapiro, DVM, MPVM, PhD, have been honored as Chancellor’s Fellows. The new fellows were selected for their positive impact on “our university’s mission of research, teaching, and public service,” said Chancellor Gary S. May. Each receives \$25,000 in unrestricted funds for research or other scholarly work. Gareau is known for her research in understanding how changes in gut microbes impact brain functions and behavior. Shapiro is known for her pathological research focusing on water as a medium of interaction between animals and humans.

Pamela Lein, PhD, was selected by the American Association of Veterinary Medical Colleges to receive their Excellence in Research Award. This award recognizes outstanding research and scholarly achievements, leadership in the scientific community,

and exceptional mentoring of students and colleagues in the field of veterinary medicine. As a prolific researcher and director of the second CounterACT Center of Excellence, Lein has developed several exceptional research programs in neuroscience, immunology, and environmental health that have substantially informed public policy.

Christine Kreuder Johnson, MPVM, PhD, VMD,

has been chosen to serve as a U.S. Science Envoy in 2023. Science envoys are approved by the secretary of state and engage internationally at the citizen and government levels to enhance relationships between other nations and the United States, develop partnerships and improve collaboration. Johnson is a professor of epidemiology and ecosystem health and director of the EpiCenter for Disease Dynamics within the UC Davis One Health Institute.

John Pascoe, DACVS, PhD, was selected to receive the 2023 Billy E. Hooper Award for Distinguished Service by the American Association of Veterinary Medical Colleges. This award recognizes an individual whose leadership and vision have made a significant contribution to academic veterinary medicine and the veterinary medical community at large. Pascoe has made key contributions to advance veterinary medical education as an innovative teacher of surgery, leader in planning of the school’s new facilities, mentor, and more.

The **Comparative Pathology Laboratory** has been honored with a UC Davis 2022 Lab Safety Award for the second time in four years. Directed by Dr. Denise Imai-Leonard, the lab provides services to campus veterinarians and investigators in the UC system and external academic and industry clients. The lab’s dozen staff members work with a rotating mix of veterinary medicine and pathology residents, veterinary students, undergraduate student workers, and interns.

In Memoriam

James (Jim) Jones, PhD, DVM

UC Davis Removes GRE Requirement

The UC Davis School of Veterinary Medicine removed the Graduate Record Examination (GRE) requirement for DVM student admissions. UC Davis joins the majority of the 32 accredited U.S. veterinary schools in making this shift after studies showed systemic bias in the GRE. It has been argued that the GRE (based on verbal, quantitative and analytical writing) does not predict

student success in the sciences, as the exam does not demonstrate an applicant's understanding of science. The GRE also presented a financial barrier for some veterinary school applicants due to the high cost of the test as well as test prep courses, creating an inequity between applicants. The change applies to the current admissions cycle for applicants to the Class of 2028.



“She’s a dog that **loves the relationship and working**, and having a job.”

— Professor Lisa Tell

Photo: Gregory Urquiaga/UC Davis

Canine Triathlete Retrieves Aggie Hearts



Cori has branched out from her tee-retrieval duties at UC Davis Aggies football games to bringing bats back to the dugout for the baseball team. She's also learned to dunk a small ball at Aggie basketball and Davis High School games. The triathlete is just doing what she enjoys.

“She’s a dog that loves the relationship and working, and having a job,” said her owner Professor Lisa Tell, DVM '91. “She’s happy to retrieve anything that I want her to retrieve.”

That said, for a dog who loves retrieving balls, Tell had to make sure that Cori focused on the bat and not the ball being thrown back and forth. Cori will participate in only a few baseball games this season, but she’s always happy to meet fans. Tell often has stickers featuring Cori’s likeness to hand out. She’s even enlisted the help of a veterinary student ambassador, Stephanie Han (Class of 2025), to bring Cori to more events.

Keep up with Cori on Instagram:
@corirocketdog.



Photo: Mike Bannasch

Welcome New DLC Members

Welcome to the six new members of the Dean's Leadership Council! They join 13 other distinguished leaders in their field, representing key constituencies of the school and serving as advisors to the dean. Pictured from the left are Valerie Reynoso Piotrowski, Gayle Brock, Christine Jenkins (DVM, DACViM-SAM), Dean Mark Stetter (DVM, Diplomate ACZM), Julia Lewis (DVM, MPH), David Cheresh (PhD), and David Jessup (DVM, MPVM, Diplomate ACZM) and his dog, Grandin.

Redwood SEED Scholars Join the Vet School

The veterinary medicine community welcomes three Redwood SEED (Supported Education to Elevate Diversity) Scholars as assistants. A collaboration between the UC Davis MIND Institute; the Office of the Vice Chancellor of Diversity, Equity, and Inclusion; and the Division of Continuing and Professional Education, the SEED scholar initiative is a four-year UC Davis residential program for students with intellectual disabilities. Scholars are full-time non-degree students working toward a practical credential and preparing for employment. From left: Sophie Howarth serves on the Development team, Ryan Fitch is part of the Center for Companion Animal Health, and Cristina Riegos assists at the veterinary hospital.



Photo: Lyra Pineda-Nelson

Announcing the School's First Chief Diversity Officer



“Diversity, Equity and Inclusion work is my calling and passion.”

— **Monae Roberts**

Monae Roberts joined the school as our first Chief Diversity Officer. They have previously served on the main UC Davis campus as Director of the LGBTQIA Resource Center and a program coordinator at the Cross Cultural Center. After a brief stint off campus, Roberts is happy to be back in an academic setting where they enjoy collaboration with like-minded people.

“Even if we don’t always share the same points of view, I find the university a more open environment, where folks are willing to learn and grow,” Roberts said.

They began collaborating with members of the veterinary medicine community after being tapped in 2018 to present at the Iverson Bell Symposium—a weekend diversity summit for veterinary professionals.

“Diversity, Equity and Inclusion work is my calling and passion,” Roberts said. “It’s important for me to create positive change in the world in some way. With a supportive team alongside me, I feel I can do that here.”

In their experience of working with individuals and groups on DEI issues, Roberts said one of the biggest challenges to overcome is fear.

“People worry...what if I mess up and do the wrong thing? My hope is to support everyone through that. The fact is, we will all mess up. We’re human and won’t get it right 100% of the time. I’ve been doing this for 10 years and I still mess up. It’s about how you mess up and how you move forward, being able to sit in that discomfort, owning your mistakes, and figuring out how to be better in the future. That’s what creating change is about. But if we don’t take that risk,

*Monae Roberts was appointed the school’s first Chief Diversity Officer in February.
Photo: Mike Bannasch*

then we will stay stagnant. This school didn’t get to #1 by staying stagnant. My hope is to be here to hold your hand. We can mess up and move forward together.”

Roberts is also excited about being involved in K-12 outreach and finding more ways to expose under-represented communities to careers in veterinary medicine. They look forward to supporting new initiatives, policies and practices.

“This position is the perfect intersection of things I really enjoy,” Roberts said. “Right now, it’s about listening and gathering as much information as possible to see where we can go.”

Roberts lives with their wife, two kids (10 and 16), and two rescue chihuahuas, Howie and Ginger, in Sacramento.



Ali Pankowski

Class of 2023

By Amy Young

“Trying other things first has made **vet school a **great experience** because I know that this is where **my interests truly lie.**”**

— Ali Pankowski



Ali Pankowski (second from right) comes from a family of veterinarians, including her dad, Richard, her sister, Annie, her mom, Diane Craig '83, and her partner, Lindsey Wachsman, also in the UC Davis Class of 2023. Courtesy photo

For former professional ice hockey player Ali Pankowski, skills learned on the ice—teamwork, quick thinking, and adaptability—are instrumental to her success as a veterinary student and entrepreneur.

Growing up, Pankowski and her sister Annie, a veterinary student at the University of Wisconsin, spent a lot of time at a veterinary hospital in Orange County owned and operated by their parents. Although she always thought of being a veterinarian, Pankowski worried that it was the comfortable choice. As a public policy major at Princeton University, she considered law school and worked in a district attorney's office researching cold cases. Then came the opportunity to play professional ice hockey in Switzerland for a year.

When Pankowski returned to southern California after living abroad, she helped her parents set up a laboratory at their clinic. The experience renewed her interest in veterinary medicine, so she applied to veterinary school.

“Trying other things first has made vet school a great experience because I know that this is where my interests truly lie,” said Pankowski.

When the COVID-19 pandemic sent classes online, Pankowski and her sister moved home to keep up with their clinical skills and help with the family business. They gained an unexpected appreciation for the challenges behind transferring and reading veterinary medical records.

“We hoped that when we pulled up a case we weren’t going to get a 300-page record,” reflected Pankowski. “We agreed that there has to be a better way to do this.”

After returning to in-person instruction, an opportunity arose to address the issue. An open call from the Wisconsin Alumni Research Foundation and High Alpha Innovation’s Venture Studio sought ideas for problems that could be solved with software. The Pankowski sisters interviewed hundreds of veterinarians and other stakeholders to come up with their product, Transfur, which leverages advanced technologies like artificial intelligence to request, send, manage and review clinically relevant information from an animal’s medical records.

Their concept was chosen as one of 150 ideas to participate in a weeklong “hackathon” competition. After a successful pitch to investors on the final day, they claimed the top prize of \$500,000. The winnings enabled them to hire a CEO and build the product, which is nearing a commercial launch.

Pankowski is looking toward graduation in 2023, an internship at the University of Pennsylvania, and a residency in small animal surgery or emergency. In her free time, she stays active by practicing Olympic-style weightlifting and hiking with her dog, Bruce.

In addition to family support, she credits sports as part of her equation for success.

“Playing hockey significantly influenced my experiences,” said Pankowski. “In vet school, you’re constantly working with new people with different personalities, backgrounds, and interests and trying to form a cohesive unit in a short amount of time to achieve a shared goal.”

Similarly, with Transfur she had to learn to assume different roles.

“When we started Transfur, we were the ‘captains’,” she said. “Then we hired a CEO and had to navigate how to provide insight in different ways.”

Above all, sports taught her to handle new situations with confidence.

“I wouldn’t give up my sports background for anything,” she said.



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Giving in Action

"It's tremendous that we as a class have reached our \$100,000 goal to support scholarships. It feels really good. This is a small step in addressing the significant challenge of veterinary student debt and helping the profession as a whole. Small steps do make a difference!"

– Dr. Robert Garcia '70, DVM '72

Members of the Class of 1972 (below) celebrated their 50th anniversary reunion.
Photo: Vu Dao

Scholarships strengthen our future by investing in the world's brightest veterinary students who will lead the way in caring for animals, people and the environment.

Join the Class of 1972—and hundreds of alumni across all class years who are supporting current students—by making a gift today at give.ucdavis.edu/go/23DVM

