

**FULFILLING THE
21ST CENTURY
LAND-GRANT MISSION**

*Essays in Honor of The Ohio State University's
Sesquicentennial Commemoration*

**EDITED BY STEPHEN M. GAVAZZI
AND DAVID J. STALEY**



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Toward a Land-Grant Fierce Future

*BE THE MODEL™ College of Veterinary Medicine in the
Twenty-First Century*

RUSTIN M. MOORE

The Ohio Agricultural and Mechanical (A&M) College's School of Veterinary Science was founded in 1885, more than twenty years after President Abraham Lincoln signed the federal Land-Grant College (Morrill) Act of 1862. Despite the two decades that had elapsed, the origins of veterinary sciences at what would eventually become Ohio's first and only college of veterinary medicine were distinctly and authentically rooted in the land-grant tradition—born out of the necessity to educate individuals who would care for the many animals associated with Ohio's booming agricultural industry.

Even before establishment as a school, veterinary sciences permeated the curriculum at Ohio A&M, first through the Department of Zoology and Veterinary Science under the direction of Professor Albert H. Tuttle, a zoologist, and then through the Department of Agriculture, Botany, and Veterinary Science, under Dr. Norton S. Townshend, a medical doctor who taught courses in animal disease. Wrote Dr. Arthur F. Schalk in his 1956 *History of the College of Veterinary Medicine*, “considerable interest was exhibited in veterinary medicine” before the college's founding. Said Dr. Schalk:

The agricultural students who came from the farms, were deeply concerned about the losses from disease in their herds and flocks . . . [and] they naturally wanted to learn as much as possible about livestock health

and disease. Hence, it is not at all unusual to learn that large numbers of those students elected to pursue all the veterinary courses projected in the agricultural curricula; nor is it surprising to know that their numbers sometimes equaled or exceeded those who chose conventional agricultural courses. (Schalk 1957, 48)

With a petition from the board of trustees to the state legislature in 1885 and the arrival of Dr. H. J. Detmers, the first professional veterinarian on faculty, the nation's third veterinary school was founded. Renamed the College of Veterinary Medicine in 1897, today the college remains Ohio's only college of veterinary medicine, one of only twenty-five colleges of veterinary medicine at land-grant universities in the US; it prepares more than 80 percent of Ohio's veterinarians. Continuously accredited by the American Veterinary Medical Association and ranked in the top five in the nation by *U.S. News and World Report* for over a decade (currently #4), the college recently was ranked #3 among US colleges and #8 worldwide by QS World University Rankings—an external validation of our preeminence, prominence, and impact.

Since our founding, we have awarded over 9,800 doctor of veterinary medicine (DVM) degrees, more than any other US veterinary college, and nearly 1,000 graduate degrees. Our college has a reputation for “growing” leaders in academia, practice, industry, government, military, research, professional organizations, and others. Approximately thirty former veterinary or graduate students, interns, residents, faculty, and administrators have gone on to serve as deans and as thought leaders in the field, including eight who currently serve as deans of US veterinary colleges. The college's first graduate, Dr. Mark Francis, became the founding dean of the Texas A&M School of Veterinary Medicine. Two of our DVM alumni, Drs. Lonnie King and Glen Hoffsis, have served as dean at two and three colleges of veterinary medicine, respectively. Our DVM and graduate alumni work in all fifty states and in over forty countries, serving all areas of the profession.

The veterinary medical profession has evolved since the college's founding—from its beginnings of caring for horses, which provided the primary mode of transportation and plowed Ohio's fields, to serving Ohio's livestock and growing pet population, and leading research initiatives impacting animal and human health. What might Dr. Detmers have thought of today's wired classrooms, state-of-the-art therapies, and internationally recognized One Health research that translates to advances in animal and human health? He would see a continuation of

the land-grant mission he was instrumental in establishing for the college. He would also see a continuous thread of teaching, research, and engagement that continues to thrive and is interwoven in everything we do in our classrooms, clinics, barns, research labs, and other areas within the college, and on farms and fields across the state's eighty-eight counties and beyond.

Within our modern land-grant university, we continue to protect animal agriculture, promote food safety, and perform agricultural and biomedical research that advances animal and human health. We preserve the human-animal bond; serve as a resource to veterinarians through referral and consultation services; provide assistance to animal owners, pet parents, and others; and provide primary, emergency, and specialty veterinary care for animals throughout our veterinary health system. Last year the system had over 45,000 patient visits and cared for over 28,000 animals on farms across Ohio. That is just a glimpse of our land-grant mission in action.

As we look to the future of veterinary medicine, with the guidance of a new, transformational strategic plan, the College of Veterinary Medicine will continue to drive progress in our communities and worldwide as we strive to BE THE MODEL™ comprehensive college of veterinary medicine in the world. Our ambition to BE THE MODEL™—to be emulated by our peers and to set the bar for preeminence—is a continual journey rather than a destination. It is also the difference between A and A+, the distinction Ohio State president Michael V. Drake has described between “doing a good job and being your best self.” We simply could not accomplish this at any other institution. Our co-location with fourteen other colleges, including six other health science colleges, a nationally recognized human medical center, and numerous other exemplary colleges and programs, uniquely positions our college as a critical partner as the university strives to solve our world's most complex and pressing problems. Our college is proud to contribute to Ohio State's prominence and incredible contributions to our communities, nation, and world; that is land-grant fierce in action and impact!

Preminent Teaching and Learning

Our college seeks to deliver extraordinary, value-driven education that prepares veterinarians to lead the field, advance science, and achieve personal fulfillment. Our graduate degree programs offer MS, MPH, and

PhD degrees in preparation for careers in biomedical, clinical, and field-based epidemiological research—and are central to the college's research agenda. Collectively, we help prepare the next generation of veterinary practitioners, specialists, scientists, and thought leaders in their respective fields.

Unique contributors to students' success include the nation's first required shelter medicine and surgery rotation for fourth-year veterinary students in partnership with Columbus Humane, a program that over the past decade has provided every student the opportunity to spay or neuter twenty-five to thirty dogs and cats under the direct supervision of our faculty. The Veterinary Scholar Summer Research Program provides mentorship and infrastructure for veterinary students to attain specific technical and conceptual skills to perform hypothesis-based research involving faculty supervised projects. Working alongside and under the supervision of our faculty scientists introduces students to research and the desire to seek advanced degrees beyond their DVM and a broader spectrum of career opportunities. The college offers a business minor in health sciences through Ohio State's Fisher College of Business. We have had and continue to have a leading professional development curriculum, and our Office of Career Management was the first to be established at a college of veterinary medicine to offer career services exclusively for veterinary students, alumni, and employers. We were one of the first to adopt and implement a health and well-being program for our DVM students, with licensed social workers embedded in the college and other mental health resources available. The Rainier Scholars Program engages professional degree/graduate students in veterinary medicine with academic, laboratory, and hands-on projects and experiential opportunities to position them for career pathways in industry.

As a land-grant college of veterinary medicine, we have moved from being state funded to state supported, and the level of support positions us at the bottom of the top 10 colleges and less than half the median regarding funding on a per student basis, and in the bottom 10 percent of all thirty US colleges of veterinary medicine. In the twenty-year span between 1999 and 2019, our state funding increased about 11 percent, or just over 0.5 percent per year. However, this clearly lags behind the 53 percent increase in consumer price index (inflation) during the same period. This results in our purchasing power from state funding being only 72 percent of what it was twenty years ago, while the costs have increased substantially. We are woefully underfunded by the state compared to peers, which has widespread negative consequences.

Fortunately, philanthropy has played a key role in advancing the college's land-grant mission areas. For example, a \$39 million transformational gift from the Stanton Foundation helped establish the Building Preeminence in Veterinary General Practice Education (BPVGPE) program, which supports initiatives that result in more competent and confident, practice-ready veterinarians. Along with the Stanton Summer Externship program, which gives students hands-on experience caring for dogs and other small animals in designated veterinary practices as they help clients from a broad range of socioeconomic backgrounds provide an appropriate level of care for their pets, the BPVGPE helps students learn the art and science of how to practice along the spectrum of care.

Our college's comparative and veterinary medicine graduate program is renowned, and many of our graduates (PhD, DVM/MS, MS, and MPH) have distinguished careers in biotech/pharma, animal-health, and biomedical corporate entities, as well as in academia. Their work during their time in our college has strengthened and advanced our research and discovery and contributed to our commercialization success. Our veterinary pathology residency/PhD program is one of the premier programs in the nation preparing the next generation of board-certified anatomic and clinical pathologists with research-intensive training. Our veterinary public health specialization within the MPH program (MPH-VPH) through the College of Public Health is unique and provides students with public health credentials to serve as leaders in prevention and control of zoonotic and food-borne diseases in the US and the world. Currently, the dean of The Ohio State University Graduate School is a faculty member in our college.

Our college has been a pioneer and leader in the development of advanced clinical training by embracing and promoting the establishment of residency programs leading to specialization. In fact, this year marks the fiftieth year since the first resident in small animal surgery began his program. We have since expanded residency programs in multiple specialties throughout the college and our faculty have been leaders in these respective specialty colleges, including serving as officers and president.

Our strategic plan seeks to improve the accessibility and affordability of veterinary medical education; promote a healthy, inclusive, and supportive environment; and enhance diversity. We have limited annual tuition increases to 2 percent annually, while between 2014 and 2019, we increased philanthropic scholarship dollars awarded annually by just under 500 percent and the average scholarship dollars awarded per student by just over 500 percent to address the cost of education and debt for our students. Our college received the 2019 Award for Fundraising

Excellence in Student Scholarships from the American Association of Veterinary Medical Colleges, a testament to our commitment to help relieve our students' educational debt.

We have intentionally worked to enhance the diversity of our homogeneous veterinary profession. From students entering in 2015 to 2018 (classes of 2019 to 2022), the change in the three groups considered underrepresented in the veterinary profession by the American Association of Veterinary Medical Colleges has increased from 14 to 35 percent for underrepresented minorities; 14 to 28 percent in males; and from an unknown number to 29 percent for first-generation college students. Seventy-one percent of our class of 2022 represented at least one of these three underrepresented groups. Because of our diversity and inclusion results, we received the Health Professions Higher Education Excellence in Diversity (HEED) Award from *INSIGHT Into Diversity* magazine the past two years. Our commitment to diversifying the veterinary profession is based on scientific evidence that diversity contributes to excellence and will help the veterinary profession better serve our people and communities.

Innovative and Impactful Research

Since Dr. Detmers first studied hog cholera, our researchers have worked to solve complex problems, often across disciplines. Dr. Richard Olsen developed and commercialized the first vaccine for feline leukemia virus (FeLV), which had been the leading cause of illness and death in cats. Research into the FeLV vaccine also provided important insight into diseases that depress the immune system—such as human acquired immune deficiency syndrome, or AIDS—and ultimately led to the opening of the university's Center for Retrovirus Research (CRR, the director of which has always been one of our college faculty). The work of the CRR and research across the university were important in establishing the university's Infectious Diseases Institute, which contributes to global research in diseases impacting animals and humans. The director of this university-level institute and four of the eight program directors are faculty from our college.

The college is at the forefront of the arena known as One Health, which examines how the health of humans and animals and the well-being of the environment are inextricably linked and contribute to critical risk factors for infectious diseases. Veterinarians are broadly educated in comparative medicine and disease, and are thus well positioned at the center of the triad to positively benefit the health and well-being of ani-

mals, people, and the environment. One way to view this is through the lens of the “Three Zs” of One Health:

- Zoonoses—infectious diseases that start in animals and are transmitted to people, which account for about 70 percent of the (re)emerging infectious diseases in people;
- Zoobiquity—because animals and people develop similar diseases like cancer, diabetes, and arthritis, it is beneficial to collaborate across human and animal health to advanced comparative medicine, including investigating naturally acquired spontaneous models of animal disease to lead to discoveries that enhance animal and human health; and
- Zooeyia—the term used to define the positive health benefits (physical, social, behavioral, emotional, mental, and psychological) on people who interact with animals.

Research increasingly shows that people with autism, dementia, post-traumatic stress disorder, and many other health conditions can benefit from interaction with a pet.

The college has led Ohio State in commercialization revenue generated from royalties on the strength of both the Olsen FeLV vaccine and tick-borne diagnostics for companion animals from the laboratory of Dr. Yasuko Rikihisa. In fact, the success of the commercial license of the FeLV vaccine was a key driver in the establishment of the university’s Office of Technology and Commercialization.

Through our strategic plan, the college seeks to make Ohio State a national and global leader in animal and human health as a top research-funded college of veterinary medicine. Current outstanding research efforts include the use of host-directed therapeutics for lung infections; mitigation approaches for antimicrobial bacterial strains; environmental, bird, and swine surveillance to inform future strains for flu vaccines; various sponsored research, clinical trials, and testing services; and much more.

Caring for Ohio’s Animals

Symbolic of the college’s land-grant roots is our veterinary health system, which serves tens of thousands of Ohio’s animals each year through the Veterinary Medical Center’s Hummel & Trueman Hospital for Companion Animals, Hospital for Farm Animals, and Galbreath Equine Center on the Columbus campus; Small Animal Emergency and Orthopedic

Surgery Center at the Veterinary Medical Center Dublin location; and Large Animal Services at Marysville. With pets becoming more a part of our families, three of four households having at least one pet, and the expected US population increase, the need for veterinarians and the economic impact on communities will only continue to increase.

The veterinary health system provides a unique educational environment that prepares students, interns, and residents for general and specialty practice and careers across the breadth of the profession and spectrum of care. They learn from outstanding clinical faculty members, who have been leaders and pioneers in the development and use of plates and screws for repairing fractures in dogs and horses, and who pioneered the development and refinement of total hip replacement in dogs, among many other advancements.

A recent \$33 million enhancement of the Veterinary Medical Center, predominantly funded by private philanthropy, provides additional space for care as well as a rich learning environment for students during their fourth-year clinical capstone. Supported by an investment of \$6 million by the Blue Buffalo Company, the Blue Buffalo Veterinary Clinical Trials Office currently oversees twenty to thirty-five clinical trials at any one time and over sixty trials a year, with enrollment of over 700 patients per year. These trials have contributed to the development of new treatments for cancer, heart disease, and arthritis, among others, and have benefitted animal and human health.

Through our strategic plan, the college seeks to BE THE MODEL™ for excellence in academic veterinary medicine and the referral center of choice by delivering accessible, cutting-edge care in partnership with referring primary care veterinarians, while providing outstanding client experiences. Through our clinical services, we provide vital resources and assets to Ohio and beyond.

We collaborate across the Ohio State campus and with the Columbus Zoo and Aquarium, The Wilds, the Ohio Wildlife Center, and other zoos to ensure the health and well-being of wildlife and exotic animals as part of our Ecosystem Health and Conservation Medicine program. To maintain critically important animal and plant biodiversity, it is important we work together to promote a healthy and balanced ecosystem.

Engaging with Our Communities

In keeping with our land-grant responsibility, our Veterinary Medicine Outreach program seeks to improve the health of animals and peo-

ple, while promoting positive human-animal interactions. Since it was founded in 2009, the program has partnered with organizations like Life-Care Alliance, Meals on Wheels, and other community organizations to care for hundreds of pets of homebound, homeless, low-income, elder, and other vulnerable people in Franklin County. Pets receive wellness care and owners benefit from pet care education and counseling. Community outreach also touches the lives of our students. Beyond the students' medical experiences, they also benefit from raising social awareness and responsibility, building cultural competencies, and instilling civic responsibility. By interacting with diverse populations, they are prepared for veterinary careers where compassion, empathy, and interpersonal skills are as essential as medical knowledge.

Our college is committed to the university's extension mission and purpose, and in our case that means generating knowledge and research discoveries, disseminating this in user-friendly and helpful methods, and assisting Ohioans to prevent animal disease, improve livestock production, safeguard animal welfare, ensure food safety, and other activities that better lives, businesses, and communities.

The college's outreach efforts also extend around the globe through the university's interdisciplinary Global One Health initiative, where one of our college faculty serves as the executive director. One example, our Ohio State/Ethiopia One Health Partnership is creating a road map for a pilot rabies prevention and control program in Gondar, Ethiopia, aimed at significantly reducing the number of cases of rabies, a preventable disease, in animals and humans, which kills 59,000 a year worldwide. The college's rabies eradication program is enhancing public awareness, improving bite wound care for optimal postexposure rabies prophylaxis, providing mass vaccinations of dogs, humanely managing the dog population, and strengthening rabies diagnostic and surveillance capacities. This pilot can lead to the development of a national plan for sustainability in other regions of Ethiopia and perhaps across Africa and beyond.

Implementation of our BE THE MODEL™ strategic plan will lead to more opportunities for students, faculty, and staff to help those who are underserved in our community and around the globe, and to engage with Ohio's veterinary community through extension services and continuing education opportunities that improve the health, welfare, and productivity of animals, food safety and security, and public health.

Toward Our Modern Land-Grant Future

As we celebrate the 150th anniversary of The Ohio State University as Ohio's initial land-grant institution, it is appropriate to reflect on this seminal piece of legislation that has greatly improved our lives yet is often underappreciated. The land-grant institutions that have served us so well in the past remain very much relevant today, although in a different context. How will our college continue to address the major challenges facing our communities, state, nation, and world? When the colleges of veterinary medicine throughout the nation fought for continued relevance in the 1920s as the importance of horses declined, Ohio State moved quickly to redefine the role of a veterinary medicine education: emphasizing the importance of the food and fiber industry and pets, and changing the principal dissection animal from horse to dog—more than two decades ahead of some other colleges.

Looking toward the future, our college will continue to innovate and move quickly and nimbly to address challenges we cannot even yet anticipate. Advancing partnerships and interdisciplinary collaborations, we will charge ahead with continued efforts to improve diversity and inclusion among students, faculty, and staff; promote the health and well-being of our students; address veterinary shortages in rural and underserved areas; and continue to lead ambitious research studies that improve the health and save the lives of animals and people. The college will continue to be a leader across all our land-grant mission areas.

Morrill Act signer Abraham Lincoln famously said, “The best way to predict the future is to create it.” That’s what we’re doing as we aspire to BE THE MODEL™ comprehensive college of veterinary medicine in the world. As we celebrate the university’s sesquicentennial, we look forward to creating, continually redefining, and modeling a preeminent modern land-grant college of veterinary medicine that addresses and finds solutions to the time’s most relevant and complex issues in the twenty-first century and beyond.

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- Schalk, A. 1957. *History of the College of Veterinary Medicine, The Ohio State University, 1873–1956*. Columbus, OH: The Ohio State University Press.