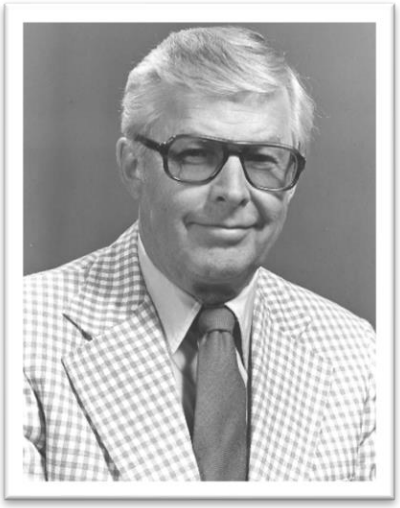
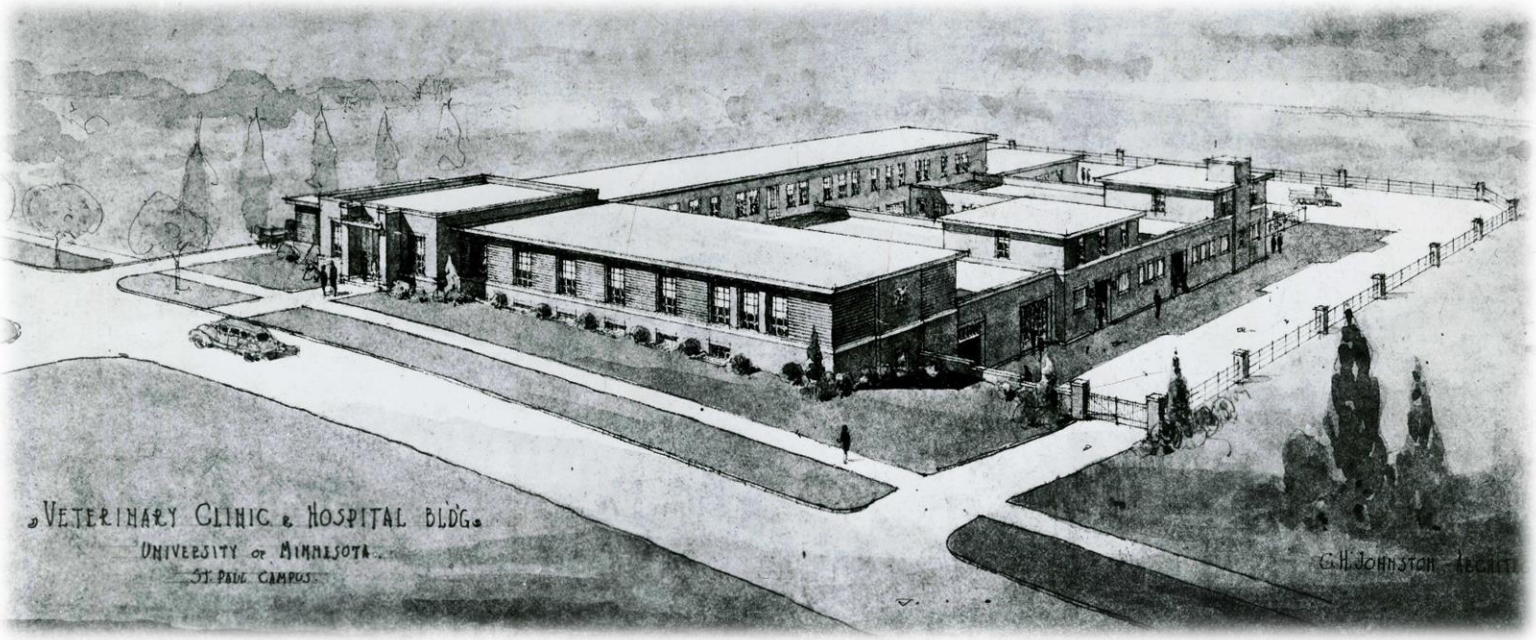
The History of the University of Minnesota College of Veterinary Medicine



By Dr. Dale Sorensen

With edits from the
Minnesota Veterinary History Museum



Chapter 1
Establishing the College at the University of Minnesota

SOURCE: HISTORICAL INFORMATION TAKEN FROM CHAPTER FIVE OF THE BOOK: "ONE HUNDRED YEARS OF PROGRESS, THE HISTORY OF VETERINARY MEDICINE IN MINNESOTA" BY JOHN P. ARNOLD, DVM, MS, PHD AND H.C.H. KERNKAMP, DVM & MS, PUBLISHED IN 1994

The veterinary profession cannot continue, much less advance, without good educational programs. Veterinary colleges bring experts together to do research in their fields, present innovative ideas to advance the profession, and train the next generation of veterinarians. The history of veterinary medical education in Minnesota is unique in that several attempts were made to establish colleges of veterinary medicine before the present College of Veterinary Medicine at the University of Minnesota was established in 1947.

EARLY VETERINARY EDUCATION IN MINNESOTA

In the late 1800s, there were only a few veterinary colleges in the United States, and most of these were in the East. While some related to public universities or colleges, most veterinary colleges were proprietary institutions that were usually run for profit. As they were self-supporting, these colleges developed large numbers of clinical cases to generate income. The students helped take care of the cases as part of their training.

In 1881, Dr. C. C. Lyford founded the Northwestern Veterinary College in Minneapolis. Northwestern was located at 716 Third Avenue South in Minneapolis. Dr. Lyford had come to Minneapolis and established a practice in 1880. He was well educated, having received a degree in agriculture from the University of Illinois, and veterinary and medical degrees from McGill University in Montreal, Canada. In addition, Dr. Lyford had one year of post-graduate study at the Royal Veterinary College of London, England.

At the time, it was not uncommon for veterinarians to obtain medical degrees to gain respect and prestige in the community. In the planning and the initial stages of the college, Dr. Lyford had the good fortune of making the acquaintance of a physician named Dr. F. Dunmore. At the time, Dr. Dunmore was planning the Minnesota Medical College in Minneapolis. They agreed that the veterinary students would attend classes in chemistry and physiology with the medical students. They further agreed that if any of the veterinary students wished to continue their education in the medical field and become a physician, they would have the privilege of completing the medical curriculum at the Minnesota Medical College.

The veterinary curriculum that was developed for the Northwestern Veterinary College extended over a three-year period. The school year consisted of six months of instruction each year and a summer session following the second year.

Northwestern's faculty included H.I. Burnish, M.D., who taught chemistry and physiology; B.W. McLellan, V.S., who taught anatomy, pathology, and clinics; Richard Price, V.S. and M.D., who taught materia medica, therapeutics, and clinics; and C.C. Lyford, B.S., V.S., and M.D., who taught surgery and clinics. Lyford served as the president of the college.

The first students who were accepted to the college when it opened in 1881 included I. I. Bradley, L. Graham, I. F. Lee, and R. C. Mason. Of these men, all but Graham graduated with a D.V.M. degree in 1885. Bradley and Mason also completed the medical curriculum and practiced as physicians. Mason began a veterinary practice in Winona, Minnesota.

In 1883, Dr. Lyford decided that none of the applicants met these exacting standards and admitted no students for that year. In 1886, Dr. Lyford again deemed that none of the applicants were considered worthy of admission. This rigorous admission process was unusual for proprietary veterinary colleges as they received no government support and needed the tuition revenue and help that comes from students.

The exacting standards of admission to Northwestern Veterinary College and the reputation of Dr. Lyford inspired the editor of the American Veterinary Review to write, "This country is large enough to support literally all institutions of this kind. Of the members of the faculty we are acquainted with but one, Dr. C.C. Lyford, V.S., and in the deserved repute obtained by this gentleman, may be found sufficient guarantee that the profession will never be disparaged by those whose diploma shall bear his name."

In 1884, Leo Briesacher, C.C. Burnham, and R.A. Van Nest were admitted as students to Northwestern. Briesacher dropped out in 1886, and Van Nest subsequently transferred to the American Veterinary College in New York City. Burnham graduated in 1887 and practiced at Stillwater, Minnesota.

In 1888, J. N. Gould was the only student admitted to Northwestern. He transferred to the Chicago Veterinary College, where he graduated in the same class with his father in 1893, and later practiced in Fairmont, Minnesota.

In 1889, fire destroyed the Northwestern Veterinary College, along with its clinic and stable. Three of Dr. Lyford's fine trotting horses perished in the fire. Dr. Lyford's decision not to rebuild the college was unfortunate because Northwestern promised to become one of the leading proprietary colleges in the country.

FIRST ATTEMPT TO CREATE A VETERINARY COLLEGE AT THE UNIVERSITY OF MINNESOTA

First Veterinary Building on the St. Paul campus.

The University of Minnesota catalog for 1888-89 listed a veterinary curriculum that would prepare students for the veterinary profession. The three-year course was open to students who either had completed two years in the School of Agriculture at the University or could demonstrate equivalent knowledge through an examination. The curriculum appeared in the 1889-90 catalog with a few changes. This was unusual because there were no veterinarians on the staff of the University at the time. Indeed, there is no evidence that these courses were taught.

Professor Edward Porter of the College of Agriculture apparently was responsible for the development of the veterinary curriculum offered by the University. The idea for the veterinary curriculum may have been inspired by remarks made by Dr. R. White during a lecture on the University's farm campus in St. Paul. The lecture, entitled "Diseases of the Fourth Stomach of Cattle," was part of a series of lectures arranged by Professor Porter to create interest and attract students to the College of Agriculture. At the close of the lecture, Dr. White, a veterinarian from South St. Paul, expressed the opinion that Minnesota should train its own veterinarians. A Committee on Veterinary Science was soon appointed. While the minutes of the Board of Regents note that the committee gave their report during the November 1888 meeting, contents of the report were not recorded.

During 1888, the Board of Regents decided to add a veterinarian to the University staff to teach courses on animal diseases. Dr. Michael Treacy, a native of New York City and a graduate of the Royal Veterinary College of London, was hired to fill the position. When Dr. Treacy appeared before the Board of Regents during their September 18, 1888, meeting, he informed them he was "moveable" and would accept their original offer of $l,500 per annum to serve as veterinarian for the Experiment Station. However, Dr. Treacy resigned to join the army after working only

two months. During the brief time he was at the University, Dr. Treacy wrote an article entitled “Tubercular

Olaf Schwartzkoff

Phthisis or Consumption in Animals,” which was published as Station Bulletin No. 4.

Dr. Olaf Schwartzkoff, a graduate of the Imperial Veterinary College in Berlin, Germany, was selected to succeed Dr. Treacy, and he began his duties in January 1889. The position was subsequently upgraded to Professor of Veterinary Services and Agricultural Experiment Station. The presence of the veterinary curriculum in the University catalog and the demise of the Northwestern Veterinary College inspired Dr. Schwartzkoff to start a veterinary college at the University. With the approval of Professor Porter, Dr. Schwartzkoff decided to teach the courses in the veterinary curriculum through the Departments of Botany, Zoology, and Chemistry in the College of Science, Literature and Arts. He made similar arrangements to teach veterinary courses in the Department of Physiology in the Medical School. He hired St. Paul practitioner Dr. Frank Allen to teach anatomy, and Dr. S. H. Brimhall, a veterinarian with the state Board of Health, to teach materia medica on a part-time basis. Dr. Schwartzkoff himself planned to teach the courses in histology and veterinary hygiene.

The University needed a veterinary hospital to teach the veterinary clinics. At their August 20, 1889 meeting, the Board of Regents approved the following resolution: “That the Committee on Agriculture be authorized to make contract for the building of the veterinary hospital for $1,200. Exclusive of painting and posts, (The posts were for tying horses along the street in front of the building).

At the May 6, 1891 meeting of the Board of Regents, President Cyrus Northrop questioned whether the hospital would be sufficiently large: “should the veterinary department grow into a college by itself, doing for the Northwest what veterinary colleges in the East, especially Philadelphia, do for the whole country, the present hospital will prove too small.” At this same meeting, the regents voted to increase Dr. Schwartzkoff’s salary by $300.

During the summer of 1891, President Northrop took a leave of absence. While he was away, Dr. Schwartzkoff planned for the teaching of the veterinary courses for the 1891-92 fiscal year. The new arrangements increased the expenses from $2,283.93 for the 1890-91 fiscal year to $6,085.24 for the 1891-92 fiscal year. When President

Northrop returned and learned of the increase in the cost of the veterinary program, he was greatly disturbed and proposed that the regents abolish the program. President Northrop's proposal was discussed at the regents' May 3, 1892, meeting. Dr. Schwartzkoff, who was present at the meeting, gave "a statement as to the educational and financial conduct of the department." Details of the discussion that followed were not recorded. However, Dr. Schwartzkoff, who was educated in Germany and had served as an officer in the U.S. Army, was blunt, forceful, and a little arrogant in presenting his opinions. There is every reason to believe the discussion was heated. "After further consideration," say the minutes, "it was voted that the request of Dr. Schwartzkoff to be relieved of his duties in Curriculum with the School of Agriculture be granted [and] that the Department of Veterinary (sic) in the University be discontinued after the present year."

Twenty-one students had enrolled in the veterinary curriculum during the two-year period it had been offered by the University. Eleven of these students subsequently transferred to other veterinary schools to obtain their veterinary degree. Charles E. Cotton of Prescott, Wisconsin, transferred to the University of Pennsylvania; J.R. Butters of Waverly, N.A. Christianson of Worthington, Thomas Falconer of Hendrix, and K.J. McKenzie of Northfield continued their studies at the Ontario Veterinary College; R.D. Eaton, F.A. Strop, J.A. Scott, and Jacob Sutzin, all students from Minneapolis, and J.N. Gould of Fairmont, each completed a degree at the Chicago Veterinary College and returned to practice veterinary medicine in Minnesota. The fate of the other ten students is not known.

CHANGE IN THE FOCUS OF VETERINARY MEDICINE

The University made several changes in veterinary studies after Dr. Schwartzkoff left. Treatment of animals from nearby farms at the clinic was discontinued. The title of the veterinary curriculum was changed to "veterinary studies." Later, the curriculum was named "anatomy, physiology and hygiene of domestic animals." The course work was tailored to meet the needs of students in the School of Agriculture who were planning careers as farmers or livestock husbandmen. The curriculum also grew to include instruction on the contribution of skeleton and muscle coverings to the conformation and soundness of the animal; the differences in digestive and reproductive systems between species of animals; the physiology of milk production; and the digestion and assimilation of food. The course also included the cause and in some cases treatment of infectious and noninfectious diseases. Because it attempted to cover so many subjects, the curriculum was mostly a survey course with little depth.

Dr. Christopher Graham replaced Dr. Schwartzkoff as the staff veterinarian at the University. Born in New York state in 1856, he came to Minnesota when three months old, attended the University, and graduated from the veterinary school at the University of Pennsylvania in a 1892. As part of the University's change in focus, he was hired as instructor. Thus, Dr. Graham was officially appointed instructor of Veterinary Science in the School of Agriculture. He began his duties in October 1892, but resigned his position with Minnesota after less than a year to return to medical school at Pennsylvania. He later became famous throughout the world as a staff member of the Mayo Clinic in Rochester.

DEVELOPMENT OF THE DIVISION OF VETERINARY MEDICINE

In 1893, Dr. Myron H. Reynolds was selected to fill the vacancy left by Dr. Graham. Dr. Reynolds had received his veterinary degree from Iowa State University in 1889 and had also earned both medical and pharmaceutical degrees. Oren C. Gregg, in charge of Agriculture Extension, first became aware of Dr. Reynolds in 1881 when he needed a veterinarian to give lectures for a farmer's institute. Reynolds was then practicing in southeastern Iowa and acting as an assistant to Dr. M. Stalker, the state veterinarian. Dr. Reynolds lectured at the farmer's institute for about two years before he was appointed staff veterinarian. When he started in the position on September 1, 1893, Dr. Reynolds received a salary of $1,000 per year. This was $800 less in salary than Dr. Schwartzkoff had been earning when he resigned and $500 less than Dr. Treacy had been paid.

Dr. Reynolds actively promoted animal disease control programs and the veterinary profession within Minnesota. He served on the state Board of Health (now the Department of Health) and the Livestock Sanitary Board (now the Board of Animal Health). Dr. Reynolds also helped organize the Minnesota Veterinary Medical Association and served as its president from 1899-1900. Dr. Reynolds was the only veterinarian on the University's staff until 1904, when Dr. C.C. Lipp was hired to assist him with teaching.

The volume of services and the research rendered by Dr. Reynolds and his staff eventually grew to the point where they needed more space. In 1901, the Veterinary Medicine Building was erected on the St. Paul Campus at a cost of $25,000. The first floor contained an operating room with an amphitheater seating eighty, a pharmacy and instrument room, a box stall ward, a contagious disease room, and a dissecting room. The second floor included a large anatomy museum, a physiology laboratory, and a private office. In 1915, the east wing was added to the Veterinary Medicine Building at a cost of $25,000.

Virus Building, where hog cholera virus producing hogs were housed. biult in c. 1915. Courtesy of University of Minnesota Archives.

ANTI-HOG CHOLERA SERUM PLANT

Hog cholera was a deadly disease of swine that wiped out many hog herds. Anti-hog cholera serum was perfected in 1907, and it was first produced by government-owned laboratories. In 1908, the College of Agriculture and the Board of Animal Health engaged in a joint venture to produce anti-hog cholera serum on the St. Paul Campus of the University. The Hyper-Immune Shed, Bleeding Building, Scale Shed, and the Hog Cholera Virus Building were all built south of the Old Anatomy Building to produce the hog cholera products. The Swamp Fever Building was also built during this period. Dr. H.P. Hoskins was added to the University staff and assigned to run the Serum Plant. In 1916, Dr. Hoskins was replaced as manager of the Serum Plant by Dr. H. C. H. Kernkamp.

Dr. Kernkamp had previously worked in the Serum Plant during the summer of 1913 while he was a veterinary student at Ohio State University. He was appointed instructor in the Veterinary Division at the close of his senior year in 1914. At that time, Dr. Kernkamp unknowingly became the center of a dispute between Dr. Reynolds and Dr. Hoskins. Dr. Hoskins had hired Kernkamp and promised him a certain salary without first conferring with the division head, Dr. Reynolds. Dr. Kernkamp had started work before Dr. Reynolds learned of the salary arrangements. Dr. Reynolds came to Dr. Kernkamp and informed him there was not enough money in the budget to cover the cost of the salary that Dr. Hoskins had offered to Dr. Kernkamp. Dr. Reynolds stated he would have to lower Kernkamp's salary to balance the division's budget, but also promised to try to get him a raise the following year. Dr. Kernkamp, who really had no choice if he wished to keep the job, told Dr. Reynolds he was agreeable to the proposal. However, Dr. Hoskins resented what he considered to be Dr. Reynolds 'interference with his position as director of the Serum Plant. This incident may have begun the ill feelings Dr. Hoskins had toward Dr. Reynolds.

Due to restrictions placed on state facilities by the legislature, commercial firms eventually produced the anti-hog cholera serum more economically than could state laboratories. By 1927, sales had dropped to such a low level that the Serum Plant was forced to close.

REORGANIZATION OF ST. PAUL CAMPUS

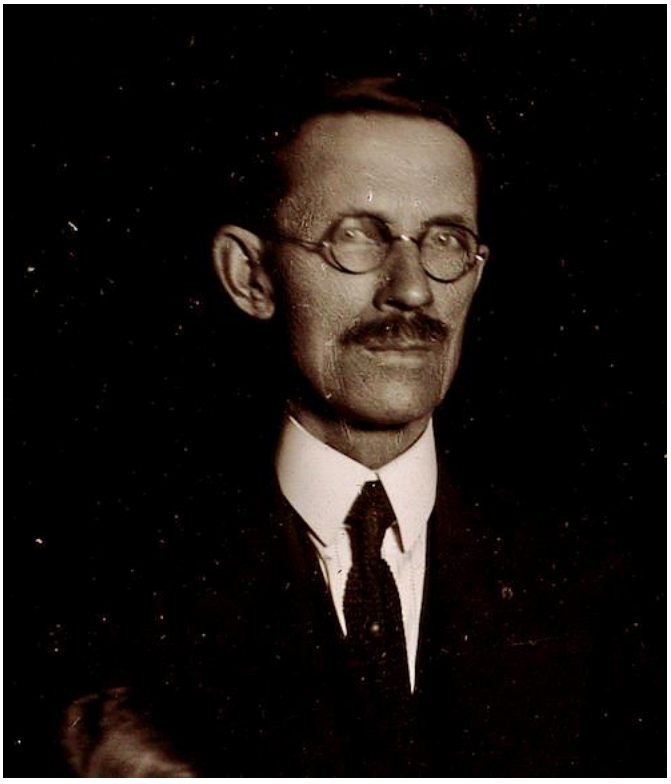
During the summer of 1916, the divisions of the University on the St. Paul campus were reorganized. The Veterinary Division was renamed the Division of Veterinary Science, and included the following sections:

I. Veterinary Sanitation, chaired by Professor Reynolds

II. Veterinary Anatomy, temporarily chaired by Dr. C.C. Palmer
III. Veterinary Physiology, chaired by Dr. C.C. Palmer
IV. Veterinary Pathology, chaired by Assistant Professor Willard L. Boyd
V. Veterinary Medicine and Surgery, chaired by Assistant Professor Willard L. Boyd
VI. Veterinary Biochemical Products, chaired by Dr. H.C.H. Kernkamp

TROUBLE IN THE VETERINARY DIVISION

Beginning in 1910, members of the veterinary profession in Minnesota grew concerned with the research performed by the Veterinary Division. They believed the research should focus more on problems in the livestock industry. They were also concerned that so many promising young researchers were leaving the University.
The concern had evolved to severe criticism by the early summer of 1916. During their own farewell dinner, Drs. J. T. E. Dinwoodie and H. P. Hoskins, two well-respected veterinarians who had resigned to accept positions elsewhere, stated that they couldn't see any future for themselves at the University.
As the result of these comments, the MVMA introduced a resolution during their summer meeting in Minneapolis on July 12, 1916, citing the lack of research performed at the University and noting the departure of competent veterinarians because of conditions at the experiment station of the University. The resolution further stated that the head of the Veterinary Division should be replaced with a person able and willing to take an active part in research and experimental work on animal diseases. The supporters of the resolution called for its immediate adoption. Notwithstanding the heated discussion that ensued, cooler heads prevailed in the end. The members voted to give Dr. Reynolds an opportunity to defend himself, and the business section of the program was recessed until the following morning to allow Dr. Reynolds time to prepare his defense.



Myron H. Reynolds

Dr. Reynolds began by stating that it was the "duty of the Veterinary Division to foster the animal industry by protecting it against infectious diseases and reducing the losses from other diseases, thus lessening the cost of production." He asserted research was an important vehicle to carry out this duty, and he had done his best to achieve these goals with the limited funds available and the division's heavy teaching commitments. Dr. Reynolds listed twenty-two publications, most of which were bulletins, and provided a resume of eight research publications prepared by the division. He also named an additional seventeen research projects that were in progress at the time.
Dr. Reynolds also described his accomplishments outside the division that benefitted the livestock industry and the veterinary profession. These activities included helping to organize the Minnesota Veterinary Medical Association and the Board of Animal Health and arranging cooperative efforts with livestock and agricultural industries. He also cited his service as secretary of the Board of Veterinary Examiners where he helped to organize the board's affairs and enticed veterinarians to practice in Minnesota.
Dr. Reynolds then reviewed his efforts to obtain research funds from the Department of Agriculture. Departed staff members, he said, were lured away by better paying jobs.
Dr. Reynolds concluded his defense by submitting letters from officials in other states that praised the disease control programs in Minnesota.
When Dr. Reynolds had finished, Dr. Charles E. Cotton rose and praised Dr. Reynolds' loyalty to the profession. He then asked Dr. Hoskins to address the meeting. Dr. Hoskins con- fined his remarks to conditions at the University and avoided any comments relating personally to Dr. Reynolds. Dr. Hoskins stated he originally came to Minnesota

to do research exclusively, but recent events had taken him away from research. He stressed that the pay of veterinarians on the St. Paul Campus was low when compared with other persons employed on the campus, and that research was the only accomplishment considered in setting individual staff members' salaries.
Dr. Reynolds asked Dr. Hoskins whether Reynolds, as chairman of the division, had lessened the amount or quality of Hoskins' research. He pressed Hoskins hard to say that Dr. Reynolds could not be blamed for the lack of research. Dr. Hoskins then responded by saying that he did not consider Dr. Reynolds had done any "real" research and, in fact, Dr. Reynolds was not "a research man." He continued by stating Dr. Reynolds had even said on occasion he was not interested in research. Dr. Hoskins concluded by stating Dr. Reynolds was more interested and concerned with the Board of Animal Health than with conducting research.
In the discussion that followed, a motion was made for the Resolutions Committee to rewrite the proposed resolution. The committee was instructed to strike any wording that reflected on the present and past management of the division, and to urge a greater and better veterinary department in the future. There was a general feeling that Dr. Reynolds was not entirely at fault for the state of research in the division and he should not be castigated for that. The resolution was adopted as amended. Copies of the resolution were forwarded to the director of the experiment station, to the president of the University, and to each member of the Board of Regents. This marks the first and perhaps the only time the Minnesota Veterinary Medical Association interfered in the internal affairs of the University.

DR. FITCH REPLACES DR. REYNOLDS

Clifford P. Fitch

The Dean of Agriculture saw the need for a change in the leadership of the Veterinary Division before the matter came up at the MVMA meeting. He had been quietly conducting a search for a person with a greater commitment to research to head the division. He offered the position to Dr. John R. Mohler, who later became famous as chief of the Bureau of Animal Industry but Mohler declined the offer.
The search for a new head of the Veterinary Division intensified following the MVMA meeting. On June 3, 1917, the Board of Regents voted to recommend the appointment of Dr. C. P. Fitch as Professor of Comparative Pathology and Bacteriology, and chairman of the Division of Veterinary Medicine. They also voted to designate Dr. Reynolds as Professor of Veterinary Medicine in charge of the Section of Veterinary Sanitation. Despite his demotion, Dr. Reynolds remained in the division and, to his credit, carried out his assignment in a commendatory manner until his death in 1929.
Dr. Clifford Penny Fitch, B.S., D.V.M., and D. Sc., was born on July 1, 1884, in Sauquit, New York. He received his veterinary degree from Cornell University in 1911. From 1911 to 1917, Dr. Fitch was a member of the faculty at Cornell University where he taught courses in bacteriology and parasitology and managed the laboratory work conducted in conjunction with the New York Department of Agriculture. From 1915 to 1916, he was resident secretary of AVMA for the state of New York. Dr. Fitch was primarily known as a bacteriologist.
Dr. Fitch proved to be a good administrator who wasted little time making changes in the Veterinary Division. As the first order of business, he persuaded the Board of Regents to change his title to Professor of Animal Pathology and Animal Pathologist of the Experiment Station. He then set about changing the focus of the division to emphasize research by enlarging the staff and by raising additional research funds.
Dr. Fitch set an example for the staff with his personal emphasis on research. He became involved in a cooperative research project with the U.S. Department of Agriculture on infectious abortion, or Bang's disease. Dr. Fitch served on the U.S. Livestock Sanitary Association Bang's Disease Committee from 1919-30. He also played a key role in

standardizing the agglutination test, or tube and plate test, for brucellosis. At this time, the division conducted

2nd Floor of the Old Anatomy Building

Dr. Fenstermacher (L)

research projects in infertility and mastitis in cattle, poultry diseases, and swine diseases, including hog cholera.

Veterinary Staff in 1931, left to right; front row, Grace Whitmer, Francis Goldberg, Dr. C.P. Finch, Rose Kenaley, Emma Miller, second row, Gladys Christenson, Jean Blocker Rollins, Eileen Davis, Hazel Hammersland, Dr. Ruel Fenstermacher, Lucille Bishop King, third row, Marvin Kent, W. Nilson, Dr. W.L. Boyd, Dr. H.C.H. Kernkamp.

Dr. Fitch was a tough but fair taskmaster. He was a very hard worker, and he expected the same from the staff. On one occasion, Dr. Fenstermacher, a member of the staff, had been out of town at an extension meeting the evening before giving a talk to a group of farmers. He returned quite late and overslept the next morning. Dr. Fitch, who was unaware he had been out representing the University the previous evening, was waiting for Dr. Fenstermacher when he reported to work in the middle of the next forenoon. Dr. Fenstermacher got out of his car and started walking toward the door of the building. There he saw Dr. Fitch standing by the door with his watch in his hand. Dr. Fenstermacher, who was not one to be pushed around, walked back to his car, drove off, and did not return until the following day.

Dr. Fitch had a significant ego. At the start of the brucellosis herd test program, it was necessary to instruct veterinarians on the technique of drawing blood from cattle for the test. Dr. Fitch demonstrated the technique at a meeting of veterinarians. A docile Guernsey cow was led into the room. A chair was then brought into the room and placed by the neck of the cow. Dr. Fitch, dressed in a white coat, walked in and sat down in the chair beside the cow. While the herdsman held the head of the cow, Dr. Fitch proceeded to draw a tube full of blood. The veterinarians had trouble controlling their amusement at the scene of Dr. Fitch sitting in a chair while drawing blood from the cow. It would be impossible to place a chair beside a cow in most dairy barns or barnyards. Even if one could place a chair beside a cow, it would be too easy for the cow to kick or strike the veterinarian.

Farmers would call on the Veterinary Division to request veterinarians to check their cows for pregnancy and to treat fertility problems. The procedure involved examining the ovaries, ovarian tubes, and uterus by rectal palpation. Dr. Willard L. Boyd, who was both a bacteriologist and a fertility expert, was usually assigned to handle these problems. Although Dr. Boyd was usually well received by the farmers, Dr. Fitch decided that he, too, should go on these calls. During these calls, Dr. Fitch would palpate a cow first and make a very brief examination. On a non-pregnant cow, Dr. Fitch would say, "She has no chance, send her to market!" Dr. Boyd would follow and make his usual thorough examination. He would say he believed it was possible that with some treatment the cow could become pregnant again. Dr. Fitch would then say, "All right, we will give her another chance, but just one more chance." They would continue in the same manner in examining the other problem cows in the herd.

Dr. Fitch believed the staff needed a strong library to enhance the division's research capability. Although Dr. Reynolds had started the Veterinary Library, Dr. Fitch provided the impetus needed to expand it. He purchased many books and periodicals, including classic reference volumes, and modernized the holdings.

Dr. Fitch was widely respected throughout the country and was elected to many important offices. He served as secretary of the MVMA from 1918 to 1935, he was a member of the Board of Animal Health from 1922 to 1940, and he helped organize the Conference of Research Workers in Animal Diseases. He also served as president of the AVMA from 1933 to 1934. Dr. Fitch died suddenly January 11, 1940, at the age of 56.

SECOND ATTEMPT TO ESTABLISH A VETERINARY COLLEGE AT THE UNIVERSITY

At the end of World War I, a shortage of graduate veterinarians was anticipated in Minnesota. Eight of the fourteen proprietary veterinary colleges had closed between 1915 and 1920. While there were ten state-supported veterinary colleges in existence, these schools graduated only small classes and did not have the facilities to increase their class size.

The closing of private veterinary schools was caused by the U.S. Army Surgeon General's refusal to approve entrance requirements at several private schools. The closing of the private schools decreased the opportunity to obtain a veterinary degree by 43 percent. This was a significant decrease, as ninety percent of the veterinarians in Minnesota were graduates of private schools.

During the 1920 annual meeting, the Minnesota Veterinary Medical Association passed a resolution calling for the University to establish a veterinary college. Copies of the resolution were sent to Marion L. Burton, president of the University, and the Board of Regents. However, President Burton had just submitted his resignation as president and the Board of Regents was preoccupied with the process of selecting a successor. The board therefore delegated the question to a committee.

The committee assigned by the regents to review this situation determined the University Farm at the St. Paul Campus would be an ideal location for a veterinary school. The committee concluded that:

there already exist enough weak and poorly equipped veterinary colleges. Minnesota should not add to this number and be a party to turning out men who are not properly equipped to deal with the complex problems of animal disease. If there is to be a veterinary school in Minnesota, let it be such that its graduates can successfully cope with the present-day problems which confront the animal breeder. This is an expensive undertaking, and the cost must not be lost sight of when considering the advisability of a school.

On May 24, 1920, the Board of Regents referred the matter to the University's new president, Lotus D. Coffman. President Coffman apparently took no action as there is no further reference to the veterinary school in the minutes of the Board of Regents. The lack of support from the administration weakened the movement to establish a veterinary school in the University.

However, the lack of support did not altogether stop efforts. The MVMA, with the whole-hearted support of the Minnesota Livestock Breeders Association, went to the 1920 legislature to request funds to create a veterinary college at the University. Senator Charles N. Orr of Ramsey County sponsored a bill for its creation, and the bill moved through the legislature with little opposition until it was "pigeon-holed" in the appropriations committee. A hearing on the bill was scheduled to take place late one day at the end of the session, and a large delegation from the veterinary and livestock associations came to speak in support of it. At the time of the hearing, one of the members of the committee confronted the supporters of the bill and told them the bill would not be placed on the

agenda as it was destined to be "pigeon-holed." The senator suggested the supporters of the bill pull up stakes and go home. This ended the second attempt to establish a veterinary college at the University of Minnesota.
In 1920, the Graduate School gave permission to offer the master's degree, or M.S., in the Division of Veterinary Medicine. The establishment of a graduate program greatly helped the veterinary division to increase the volume and quality of its research. The first graduate student in this program was Dr. Donald C. Beaver who had obtained a D.V.M. degree from Michigan State University. Dr. Beaver's thesis was entitled "The Bacteriology and Pathology of Sterility in Cattle."
After Dr. Martin Roepke joined the staff in 1938, the division was granted permission to offer the Doctor of Philosophy Degree, or Ph.D., in Veterinary Medicine. The graduate program grew and was greatly enhanced through the cooperation of the University Medical School on the Minneapolis Campus, where graduate students in Veterinary Medicine could take courses and work in research laboratories. Medical School staff members served on graduate committees and as minor advisors. The assistance from the Medical School helped the Division of Veterinary Medicine become known as one of the better research centers in the United States. The quality of training is reflected by the fact that several graduates became deans of veterinary colleges, including Drs. W.W. Armistead (Texas State, Michigan State, and Tennessee); Everett D. Besch (Louisiana); Robert H. Dunlop (Murdock, Australia, and Minnesota); Donald Jasper (California); Ralph L. Kitchell (Kansas and Iowa); N. Ole Nielsen (Saskatchewan and Ontario); William R. Pritchard (California); George C. Shelton (Texas); and E.E. Wedman (Oregon).

DR. BOYD SUCCEEDS DR. FITCH

After Dr. Fitch died suddenly on January 11, 1940, Dr. Willard Lee Boyd was appointed chief of the Veterinary Division. A native of Iowa, he graduated from the Kansas City Veterinary College in 1909 and remained there for two years as an instructor in veterinary pathology. In 1911, Boyd joined the faculty of the Division of Veterinary Medicine at the University of Minnesota. In 1918, he was appointed professor of Veterinary Medicine.
Boyd was an astute clinician who was widely known for his work on reproductive diseases including brucellosis. He was a good speaker and very popular among his fellow veterinarians. Dr. Boyd often appeared on scientific programs in other states. He known as a mild-mannered and congenial person.
Boyd was president of the MVMA in 1922-1923, and he served as president of the AVMA in 1952-1953. He was active in the U.S. Animal Health Association and the Conference of Research Workers of America. He served on the Board of Animal Health and the former Stallion Registration Board, and he was the official veterinarian at the Minnesota State Fair horse shows for many years.
Boyd believed in physical fitness and was a staunch supporter of athletics. In the evenings, he exercised with walks in his neighborhood. He was a member of the University Senate Committee on Intercollegiate Athletics for more than 30 years, and he opened the gates at Memorial Stadium before football games for many years.
Under Dr. Boyd's direction, the Division of Veterinary Medicine continued to conduct high quality research and provide great service to the veterinary profession and the livestock industry. The graduate program expanded substantially during his tenure as head of the division.

ESTABLISHMENT OF THE COLLEGE OF VETERINARY MEDICINE

On April 28, 1947, the Minnesota legislature appropriated funds to establish a veterinary college at the University. The legislation was the result of a well-planned and extensive lobbying campaign by prospective students, members of the livestock industry, and members of many other interested groups.
Following World War II, there was a shortage of veterinarians, and surveys demonstrated that the average age of veterinarians was increasing. The value of livestock had risen dramatically. Livestock owners had become increasingly hesitant to rely on anyone other than a trained veterinarian. These factors created public support for a veterinary school.
But it was World War II veterans that provided most of the momentum for a school. Veterans flooded colleges and universities after the war to pursue their education through the G.I. Bill. Many of these veterans took pre-veterinary courses to meet the entrance requirements of veterinary colleges. These students overwhelmed the country's veterinary colleges when they applied for admission. For example, Colorado State University had 450 in-

state residents applying for admission to its veterinary college. This was ten times the number the college could admit.

To further intensify problems faced by Minnesota veterans, colleges gave priority to in-state applicants. Pre-veterinary students in Minnesota had virtually no chance of gaining admission to veterinary colleges in other states. During this situation, a meeting of Minnesota pre-veterinary students was called by Ithel Schipper and Glen Nelson during the winter of 1945-1946. Information from the meeting was published in the St. Paul Pioneer Press on November 29, 1946:

Establishing of U Veterinary School Urged by Farmers, by Alfred D. Stedman

An effort to include establishment of a school for veterinary medicine in current plans for expansion of the Minnesota College of Agriculture is gaining state-wide support among farmers and farmers' sons, many of them veterans of World War II, who are pre-veterinary students; was revealed Thursday.

A shortage of veterinarians is injuring the state's livestock industry, which is Minnesota's main source of farm income, and refusal of veterinary colleges outside of Minnesota to accept students from this state threatening to make the present scarcity of veterinarians permanent and chronic, supporters of the proposal contend.

Some contrary opinion that the shortage is being exaggerated has come to light. But numerous letters urging establishment of a veterinary school at University Farm have been received by J. S. Jones, president of the Minnesota Farm Bureau Federation and member of the board of regents of the University of Minnesota.

The Pre-Veterinary club of the University of Minnesota students has taken up the movement and is appealing actively for public support of the plan.

"With admittance to veterinary colleges throughout the United States restricted to residents only, Minnesota pre-veterinary students are unable to gain entrance to any of the 10 recognized veterinary colleges.' Robert Bossing, president of the club, has written the Pioneer Press in a statement of the case for establishing the school. The condition, he asserts will continue until at least 1949, so the shortage of veterinarians and the effects of such shortage promise to be prolonged many years unless quickly remedied."

Seventy students at the University now are registered in pre-veterinary medicine, Bossing says, and 20 others have transferred to other fields because of restricted facilities for the veterinary training they want. Bossing's letter continues: "Minnesota, one of the leading agricultural states, has only 403 veterinarians today; one for every 489 farms, one for every 21,714 head of livestock, and one for every 72,047 units of poultry. The average age of these veterinarians is 51 years. The livestock income for the past year was $666,229,000; 74.4 per cent of the entire agricultural income of the state of Minnesota came from livestock. The local practitioner is too busy caring for emergency cases in his community to aid in disease prevention. The disease prevention program, if fully carried out, will save the Minnesota farmer thousands of dollars each year. It is evident that this industry should be fully protected.

Due to the lack of graduates in the field of veterinary medicine, because of restricted educational facilities, the profession lacks competition among its own men to such an extent that it is 15 years behind other professions in research. Much research is needed in the diseases of animals transmissible to man.

Large numbers of veterinarians were graduated in the 1911-1920 era. The number of veterinarians in the United States in 1920 was 13,466; in 1931, 12,240; in 1942, 12,500, and at the present time approximately 13,500 to 14,000. From these figures it will be noted that the veterinarian population is not increasing sufficiently to meet present and future needs.

The establishment of a veterinary college in Minnesota seems to be the only solution to the problem. Other states cannot be expected to train veterinarians for Minnesota.

The University of Minnesota owns a greater number of livestock than any other University in the country, and there is ample land available on the farm campus for construction of a veterinary school.

The Pre-Veterinary or Pre-Vet Club was formed at this meeting, and its mission was to establish a veterinary college at the University of Minnesota. Robert Bossing was elected president of the Pre-Vet Club.
The Pre-Vet Club sought the advice and support from several persons including members of the veterinary staff at the University. J. Seneca Jones, secretary of the Farm Bureau and a regent of the University, was especially supportive of the club's efforts. Dr. W. E. Peterson of Dairy Husbandry in the College of Agriculture also provided the club members with valuable advice and support. The students collected data on the size and value of the livestock and poultry population in Minnesota, the number and age of veterinarians providing veterinary services in the state, the number and location of veterinary colleges, and the number of students enrolled in each college. Dr. Ruel Fenstermacher, who was the head of the Diagnostic Laboratory and an officer in the Minnesota Veterinary Medical Association, rendered great assistance in helping the students gather this information. The students also contacted and received important support from the Minnesota Veterinary Medical Association and the Board of Animal Health.
Once this information was gathered, pre-veterinary students sought permission to attend and speak at meetings of livestock organizations, poultry organizations, creamery associations, Farm Bureaus, Farmer's Unions, Grange, commercial and service clubs, veteran's organizations, and any other organizations that could provide support to the Pre-Vet Club's efforts to create a veterinary college. During the meetings, the students would relate the information they had collected to demonstrate the need to train more veterinarians. They also told these groups of the great difficulties they had, as Minnesota residents, in gaining admission to out-of-state veterinary colleges. The agricultural press, metropolitan press, and many of the newspapers throughout Minnesota soon gave wide publicity to the students 'cause.
During its 1946 annual meeting, the Minnesota Veterinary Medical Association passed the following resolution:

> ***"Resolved: that the Minnesota Veterinary Medical Association favor the establishment of a school of veterinary medicine at the University of Minnesota, said school to be of the highest standards and must meet the requirements for accreditation as set forth by the committee on colleges of the American Veterinary Medical Association."***

Copies of the MVMA's resolution were sent to the members of the state legislature and the Board of Regents.

By the summer of 1946, the campaign had reached the point where members of the Pre- Vet Club began to urge legislators to introduce legislation to establish a veterinary college. Representative August Mueller, a farmer from Sibley County, and Senator Ancher Nelsen, a farmer from McLeod County and later a member of the U.S. Congress, agreed to sponsor the legislation. Both men were experienced and able legislators who were well respected by their colleagues.
On February 7, 1947 Representatives August Mueller, Aubrey W. Dirham, L. B. Erdahl, John J. Kinzer, and Rueben Tweten introduced House File 420. Section 1 of the bill read: "There is hereby appropriated out of any monies in the state treasury not otherwise appropriated to the University of Minnesota, the sum of $50,000.00 for the establishment of a School of Veterinary Medicine at the University of Minnesota." The bill, which became known as the "Veterinary Bill," was referred to the Committee on Dairy Products and Livestock for hearings.

The St. Paul Pioneer Press of March 19, 1947, described a meeting in mid-March:

Senators Told Need of Veterinary School

> Minnesota's dairy and livestock industry faces a crisis unless action is taken now for establishment of a school of veterinary medicine at the University of Minnesota, the Senate finance committee was told Tuesday.
>
> More than 30 persons -- would-be veterinarians now attending the University of Minnesota, leaders in various farm groups and members of the Senate -- appeared before the committee in support of a bill to appropriate $600,000 to start a veterinary school.

WOULD-BE VETERINARIANS—University of Minnnesota students interested in studying veterinary medicine appeared at a Senate finance committee hearing Tuesday on behalf of a proposed bill to establish a veterinary college in the state. Discussing the measure with Sen. D.M. Crey, left of Wells are, left to right, Ithel Schipper of Wayzata, Sen. Anchor Nelson of Hutchinson, Bruce Hohn of 1614 Hewitt Ave., St. Paul, and Walter Mackey of Silver Lake.—Pioneer Press Photo.

Sponsors of the measure are Senators Ancher Nelsen of Hutchinson, William Dietz of Montgomery, and D. M. Carey of H Wells. Carey is a veterinarian.

"This action seems to us to be an absolute must," said W. S. Moscrip of Lake Elmo, who appeared as a representative of the livestock sanitary board. "We must act now if we are to of have proper livestock disease control."

Sen. Nelsen explained that there are only 409 veterinarians in the state now, 300 of who are practicing in rural areas, and that the average age of the practicing veterinarians is 51.

Ithel Schipper, president of the Pre-Veterinary Medical club at the University, said there are about 150 men at University Farm who have had pre-veterinary training but are unable to continue their studies because schools offering such courses already are over-crowded.

Ninety-five per cent of the group are World War II veterans, he said. Others appeared included Henry Derenthal, president of the Minnesota Livestock Breeders association; Clarence Palmby of Mankato, president of the Blue Earth County Farm Bureau; M. W. Thompson, representing the St. Paul Association of Commerce, and Sens. Werner Wuertz of Austin, Milford Davis, of Reading, and C. E. Johnson of Almelund.

Individuals who appeared at the hearings and urged the adoption of the Veterinary Bill included Dr. Ralph L. West, secretary of the Board of Animal Health; Colonel E. B. Miller, commander of the Minnesota branch of the American Legion; and J. Seneca Jones, secretary of the Farm Bureau. Several journalists appeared, including Alfred Stedman, Randall Hobart, and Russell Aslesen, agricultural editors at metropolitan newspapers.

In the meantime, the Board of Regents authorized President Morrill "to take the case of a veterinary college to the legislature in the strongest terms." Morrill told the legislature that the need for a veterinary school in Minnesota was uncontestable, but he argued that it would be folly to establish such a school unless it was well funded and fully accredited. At the same time, he stressed that a veterinary school should not be established at the expense of other critical needs of the University.

Notwithstanding public support for the legislation, the University administration discouraged the establishment of a veterinary school behind the scenes. They emphasized the great cost of the proposed veterinary school and argued that the University had other needs that were more important. When the University presented its budget request to the legislature, it did not include funding for a veterinary school.

The lack of meaningful support by the University administration was a source of great annoyance to rural legislators, who had already been concerned by the apparent lack of consideration for the needs of the St. Paul Campus. Consequently, a bill was introduced by Senator Oscar Swenson of Nicollet County to separate the Department of Agriculture on the St. Paul campus from the Minneapolis campus of the University. The proposed legislation caught the University by surprise and caused the administration some uneasy moments. Although the bill did not pass, the effort caused the administration to pay more attention to the St. Paul campus.

The Veterinary Bill received favorable consideration from the Committee on Dairy Products and Livestock. The proposed legislation was then referred to the Appropriations Committee where representatives questioned whether $50,000 would be enough to create a veterinary college. A subcommittee was formed to investigate the probable cost of establishing an acceptable veterinary college. The subcommittee held hearings and recommended the amount be increased to include $150,000 for staffing and $450,000 for permanent equipment and temporary

buildings, for a total appropriation of $600,000. On March 4, 1947, the subcommittee re-referred the bill to the Appropriations Committee with a favorable recommendation.
Once the Veterinary Bill seemed to be moving smoothly toward passage in the House, Senators Ancher Nelson, William L. Dietz, and D. M. Carey, himself a veterinarian, introduced a similar version in the Senate. Senate File 877 was referred to the Senate Committee on Dairy Products and Livestock where hearings were promptly scheduled. For the most part, the same persons who appeared in the House hearings also participated in the Senate hearings. However, the proposed legislation had a more challenging time in the Senate, where members questioned how the state would pay for the new school. The Veterinary Bill was subsequently tabled, and it seemed certain to die in committee.
On March 12, 1947, Alfred Stedman of the St. Paul Pioneer Press wrote:

> *the veterinary bill is up against such hard going that some of the sponsors openly" ".admitted its chances for enactment at this session was not good*

When the students of the Pre-Vet Club read the newspaper reports, they raced to the Capitol and asked to be recognized before the legislature. When their request was refused, the 70 members of the Pre-Vet Club called a special meeting on the evening of March 12, 1947, at the Student Center on the St. Paul campus. Approximately twenty-five legislators, several regents, several members of the veterinary staff, and members of the MVMA, Board of Animal Health, news media, radio stations, and University administration attended the meeting. Dr. C.H. Bailey, dean of the St. Paul campus, was invited to the meeting but declined to attend due to another commitment.
The meeting was lively and sometimes heated and included discussion of the importance of the veterinary service to the livestock industry; whether the teaching faculty could be recruited from the present veterinary staff; whether the state should assume the financial obligations created by the veterinary college; and the difficulties qualified students faced in admission to veterinary schools. During the meeting, Dr. Boyd asserted that classes could begin that fall if the legislature authorized funding.
The next morning, the Dairy Products and Livestock Committee referred the bill to the Committee on Finance, recommending its passage. Soon after, one of the student leaders, Glen Nelson, received a note from Dr. Boyd asking him to see Dean Bailey as soon as possible. Bailey let Nelson know in no uncertain terms that he was upset by the Pre-Vet Club's audacity to invite legislators to the meeting on the St. Paul campus. Due to the cost of a veterinary school in balance with other items of higher priority needed on the St. Paul Campus, Bailey urged Nelson to discontinue his efforts to create a veterinary school.
In the meantime, Senator Nelson asked Glen Nelson to contact and arrange for Dr. Boyd to come to the Capitol and give an estimate on the cost to create a veterinary college. The following day, President Morrill, Dean Bailey, and Dr. Boyd told the committee the creation of the veterinary college would cost approximately $600,000.[1]
When the Veterinary Bill was tabled by the Appropriations Committee, Alfred Stedman, a writer for The St. Paul Pioneer Press who had kept a close watch on the proceedings at the legislature, alerted those interested that the bill was in trouble.
The following people appeared at a hearing of a subcommittee of the Appropriations Committee to urge consideration of the bill:

- W. S. Moscrip and Henry Derenthal, prominent livestock breeders
- George Woodward and Clarence Palmby of the Minnesota Farm Bureau Federation
- E. W. Thompson of the St. Paul Association of Commerce
- Senators D. M. Carey, Milford Davis, C. E. Johnson, and Ancher Nelson
- pre-veterinary student lthel Schipper

After further discussion about a subcommittee failing to include the $600,000 for the veterinary school, representatives August Mueller and Joe Daun successfully amended the bill. At this point, the University administration began to believe the bill had a good chance to pass and they suggested the school of veterinary medicine should open the following year, in 1948. The pre-veterinary students who were attending college under

[1]" *The figure of $600,000 given to the committee seemed low in light of an earlier estimate of $1,000,000 offered by President Morrill. The February 15, 1947, issue of the Minnesota Daily stated.* "*President Morrill will ask the state legislature for an additional $1,000,000 for each of the 1947-1948 biennium for the establishment of a new veterinary school at the University. The school outlined by President Morrill would need $1,000,000 for each of the next two biennia to get started, and $375,000 thereafter for maintenance."*

the GI Bill were alarmed by this suggestion because they would lose their GI benefits if their college education was interrupted for a year. Senator Ancher Nelson added an amendment to the bill to require that the first class of students had to be accepted in the fall quarter of 1947. The bill, with the amendments, passed without opposition. After a long struggle and many disappointments, the third attempt finally succeeded in establishing a veterinary school at the University of Minnesota.

THE BEGINNING OF THE VETERINARY COLLEGE AT THE UNIVERSITY OF MINNESOTA

Following the passage of the Veterinary Bill, the University initially was not aware of the amendment to the bill directing the University to accept the first class in the upcoming fall quarter, and it began to leisurely plan for classes beginning in 1948 and identified certain problems that would have to be resolved before the college could actually open. When the University finally realized the first class had to be accepted for the fall quarter, there were only 110 working days left before the quarter was scheduled to begin and shock waves raced through the University administration.
From the St. Paul Pioneer Press, April 12, 1947:

Priority Assured Again; Student Pleas Win Veterinary School Aid, by Alfred D. Stedman

With Minnesota agricultural students flocking to its support at the Capitol, the project for a new veterinary school at University Farm won a critical round Friday in its long hard fight for approval by the State Legislature.

The pleas of the Minnesota students, most of them GI's, for a chance to get a veterinary education got a definite and positive "yes" answer from the Senate finance committee.

After the students had hurried to the Senate in alarm over a report by this writer that the project had suffered a stinging defeat at the hands of a Senate finance subcommittee the day before, the entire finance committee voted to recommend priority along with other projects, to a $600,000 appropriation, to get the veterinary school.

Earlier the students had given their own personal experience stories of how they had traveled hither and yon around the country to every one of the 11 existing veterinary colleges in the United States with appeals for admission, and how they had found these others full of resident students, had heard their own appeals turned down, and had been given no possibility of gaining admission anywhere until sometime in the dim distant future.

The Senate finance committee adopted a motion by Sen. Val Imm of Mankato, chairman of the subcommittee in question, to give priority to the veterinary school project along with others in 'the 20-million-dollar construction program'.

Sen. Imm presented the motion after Sen. Ancher Nelsen of Hutchinson, pressing his fight in the main committee for the veterinary project, declared it in his judgment "the most vital need in the state as far as agriculture is concerned."

At least 50 college students went to the Capitol or telephoned in behalf of the veterinary school project. Most impressive were their personal stories of futile efforts to get a veterinary education while the state's 800-million-dollar livestock industry is crying for veterinary service and the public is suffering from a spread undulant fever because of the lack.

The fact was, however that Sen. Imm's subcommittee 11 earlier, instead of rejecting the $600,000 veterinary school project outright, as this writer had reported, had favored it but had not given it a place among the projects for which it had, a recommended priority. It was this desired priority which the entire Finance committee voted Friday afternoon.

Wounded Vet Speaks

"I want a veterinary education so I can go into farm practice, but can't get in anywhere," said Emmet Boyer, disabled veteran of Eveleth. Injured by a buzz bomb at Mannheim and whose height of 6-feet prevented his getting all the way in the Pioneer Press photograph.

"I tried to get into Colorado A&M College," said Glen Nelson, army veteran of Brainerd. "My wife and I got a place to live there. But the dean told me that 450 Colorado veterans were waiting for admission, that Colorado would have to take its first non-resident students from adjoining states, and that I might just as well give up trying to get in there for many years to come."

"I drove down to Ames," asserted Warner Christenson of Clinton, Minn., a war veteran and a farmer who wants to be a veterinarian and can't unless Minnesota provides a way.

"I tried Iowa State, too and it didn't do any good," said Norman Fredrickson of Hanska.

"So did I, and if I can't get a veterinary education at Minnesota I'll have to quit, because that's the one big thing that interests me," asserted Walter Mackey of Silver Lake, who has been three years preparing for such a course.

"I saw half the lamb crop and 25 per cent of the ewes lost on my uncle's farm near Duluth due to nodular disease, and no veterinarian could be had to help," declared Bruce Hohn of Duluth, sophomore at the college and an army veteran.

"And I went to Texas and Georgia and Alabama trying to get a veterinary course and not one of them would let in a non-resident. I traveled by train and spent quite a lot of money and time, but without results," related William Bowers of Gradstone.

"I saw my father's horses get sleeping sickness and one of them die when he couldn't get a veterinarian for four days," asserted Delvin Zinter of Minneapolis.

And so on down the line went the testimonials of attempts to get into Ohio State, Kansas A.C., Cornell and other veterinary colleges without results.

Dr. John Campbell (L) and Rose Kenaley ®

President Morrill nonetheless delayed preparation of the veterinary school until he was assured the inclusion of the veterinary college in the University budget was legal. He quickly called a meeting of the veterinary staff and announced the organization and chain of command on the St. Paul Campus. All the administrative units on the St. Paul Campus were placed under the Department of Agriculture with C.H. Bailey, Ph.D., as dean and director. Under Dean Bailey, Henry Schmitz, Ph.D., served as dean of the College of Agriculture, Forestry, Home Economics and Veterinary Medicine; W.L. Boyd, D.V.M., was appointed director of the School of Veterinary Medicine; and Harold Macy, Ph.D., was appointed director of the Agricultural Experiment Station.

President Morrill assured the veterinary staff his office would see to it the University met its obligation to students entering the college on September 29, 1947. As the meeting adjourned, President Morrill added, "We'll open in September if we have to begin in a tent." President Morrill kept his word; he and his office provided complete support in the opening of the school.

At the time the Veterinary Bill passed, the staff of the Division of Veterinary Medicine consisted of the following individuals:

- Dr. Willard L. Boyd, professor and chief
- Dr. Martin H. Roepke, professor
- Dr. Howard C. H. Kernkamp, professor
- Dr. Benjamin D. Pomeroy, associate professor

- Dr. Ruel Fenstermacher, associate professor
- Dr. Alvin F. Sellers, instructor
- Dr. John R. Collier, assistant veterinarian
- Dr. Jay H. Sautter, research fellow
- Dr. Donald E. Jasper, research fellow
- Dr. Ralph L. Kitchell, research fellow
- Dr. Francis A. Spurrell, research fellow
- Margaret K. Grady, laboratory technologist
- Florence Jones, laboratory technologist
- Fern B. Frost, laboratory technologist
- Adelaide Holland, laboratory technologist (on loan from Bureau of Animal Industry)
- Wilma T. Tomlinson, junior librarian
- Rose M. Kenaley, secretary[2]
- Loraine L. Peterson, clerk stenographer

[2] Rose Kenaley joined the staff as secretary in 1931 and remained for 30 years. She clipped newspaper articles about veterinary medicine over that period of time. These clippings were an important source of information in preparation for the original MVHM "One Hundred Years Of Progress" book.

- Lawrence Jergenson, herdsman

Drs. Glen Nelson, Vern Dahl, lthel Schipper, Dean Boyd

- William T. Kehr, assistant herdsman
- Arden Ostergaard, assistant herdsman
- Magdalene West, laboratory attendant

The Division of Veterinary Medicine's total budget for the 1946-1947 fiscal years was $66,273, which reflected $59,477 for salaries and $6,796 for supplies, expenses, and equipment. Twenty-four students were admitted in the first class. The beginning curriculum and instructors included, respectively:

- Gross Anatomy, taught by H. C. H. Kernkamp, Ralph L. Kitchell, and Francis A. Spurrell.
- Microscopic Anatomy and Embryology, taught by Ralph L. Kitchell and Jay H. Sautter.
- Bacteriology, taught by M. H. Roepke and B. S. Pomeroy.
- Physiological Chemistry, taught by David Glick of the Medical School.

To ease the immediate space and equipment concerns, Physiological Chemistry was taught in the Medical School, and the Genetics and Nutrition courses were taught in the College of Agriculture. Three rooms in Old Anatomy

were remodeled as classrooms and labs to teach Gross Anatomy, Microscopic Anatomy, and Embryology. Additionally, the library in the building was enlarged. The Department of Buildings and Grounds on the St. Paul Campus responded to the challenge and the building was essentially ready by the start of the first class in late September.

While Old Anatomy was remodeled, the staff was busy preparing teaching aids. Drs. Kernkamp, Sautter, Kitchell, and Spurrell, with assistance from the Civil Service staff, worked feverishly to get these items ready. The aids included fifty sets of slides for the Microscopic Anatomy and Embryology course, bone sets[3] for the Gross Anatomy course, and microscopes. Many of the microscopes came from storage rooms, and were of ancient vintage.

Dr. Willard Boyd's leadership played a key role in the preparation for the first class. He was a source of encouragement and help to the staff in their efforts to prepare for the first class, and his leadership played a key role. Through his good relations with members of other University departments, he obtained cooperation in teaching some of the courses, and thus eased some of the strain on the veterinary staff. In 1947 there was a total of nine faculty members and 23 graduate students in the graduate program, with many of them close to completing their Ph.D. training.

[3] *Horse bones were obtained from a horse slaughtering plant; cattle bones from a packing plant; and dog bones from a dog pound. The bones were cleaned of flesh by cooking them in two 55-gallon drums. The drums were set up west of the Round Room(part of the Old Anatomy Building) and heated by steam that ran from the steam lines in the Round Room. The hoses were immersed in the water in the drums, and sodium hydroxide was added to assist the process. The bones were placed in baskets and immersed in the drums. After the initial cooking, the bones were removed from the hot water and cleaned as much as possible. The the bones were cooked again. This process was repeated until there was no soft tissue left on the bones. The last step of this process was to whiten the bones by placing them in chlorine solution.*

Chapter 2
Leadership and
The Professional Education Program

Prior to 1947, when the School of Veterinary Medicine was established, veterinary medicine had been a division in the College of Agriculture. The primary reason the Minnesota Legislature established the veterinary school was to train veterinarians to serve the needs of the state. The program's mission was to conduct research, provide a continuing education program for graduate veterinarians, and operate a diagnostics laboratory. Dr. John N. Campbell was the director of the clinic and supervised the clinical training program. He assigned the teaching duties to clinical staff and managed the clinic's business operations.

Experienced instructors were in short supply when the school opened. There had been limited veterinary training during World War II, and several new veterinary colleges were starting, creating great competition for faculty. Though funds were somewhat limited, the administration on the St. Paul campus decided to hire a limited number of experienced staff to teach subjects in which the present staff wasn't well qualified. Drs. Henry Griffiths, who had taught parasitology at several veterinary colleges, and Dr. Allen Hemingway, who had taught physiology in the Medical School at the University, were recruited. Dr. John Campbell, a successful practitioner in Fairmont, Minnesota, was hired to develop and direct the veterinary teaching hospital. Dr. Robert Merrill, a well-known practitioner in Clara City, Minnesota, was later hired to develop the ambulatory clinic.

GRADUATE STUDENTS IMPORTANT FOR CLASSROOM INSTRUCTION

However, the administration on the St. Paul campus believed instructors they trained would be as good, if not better, than any outside staff they could hire. They also believed this approach provided a better opportunity to evaluate prospective staff members to determine if they would blend well with the other staff members. Finally, graduate students received far less salary than an experienced teacher. Thus, long term staff needs were intended to be filled from the ranks of the university's graduate students.

The school was fortunate in having several of these graduate students available to teach some of the first-year courses in the curriculum:

- Drs. Ralph Kitchell primarily taught microscopy and gross anatomy
- Drs. Paul Hammond and Larry Stowe taught pharmacology
- Dr. Alvin Sellers taught physiology

Many graduate students majored in clinical sciences and provided expertise in small and large animal medicine:

- In small animal medicine, this included Drs. George Mather, Donald Low and Reid England.
- In large animal medicine, it included Drs. William Pritchard, Harvey Hoyt and John Arnold.
- Dr. David Bartlett taught reproductive physiology, obstetrics and theriogenology.

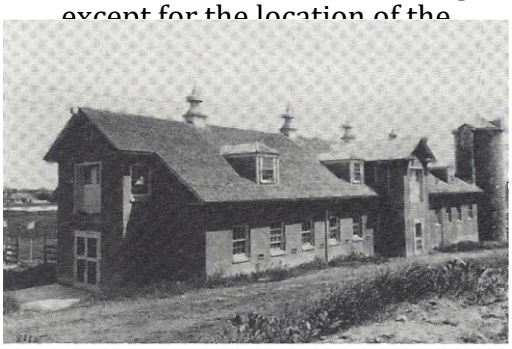
Existing faculty members Drs. Jay Sautter taught pathology, Henry Griffiths taught parasitology, and Ben Pomeroy taught bacteriology. Ruel Fenstermacher continued in charge of the diagnostic laboratory. Dr. Bartlett was assigned obstetrical cases. Dr. Robert Merrill served as the ambulatory clinician. Drs. Clarence Stowe and Paul Hammond were alternately in charge of students assigned to pharmacy. Dr. Francis Spurrell served as radiologist for both clinics. The Iowa State veterinary graduates significantly influenced the early development of the CVM.[4]

[4] *Dr. John Arnold oral interview with Dr. Paul Cox on 11/23/1987B 8:58 by MVHM. ISU graduates included Arnold, Hoyt, Kitchell, Pomeroy, Spurrell, and Weber.*

THE FIRST CLASS ENTERS

THE SCHOOL OF VETERINARY MEDICINE

Unit I, Unit II was similar in design, except for the location of the



Unit 3

The first day of class was September 29, 1947, twenty-four young men, armed with notebooks and pencils, began the program that would prepare them for careers in veterinary medicine. The members of the first class included Archibald Alexander, Minneapolis; Wesley Anderson, Aneta, North Dakota; Robert Bossing, Minneapolis; Goodwin Branstad, Grantsburg, Wisconsin; John Busch, Morris; Paul Cox, St. Paul; Vern Dahl, Arlington; John Fogarty, Belle Plaine; William Gladisch, Gaylord; Donald Hicks, Tracy; Bruce Hohn, St. Paul; Robert Leary, New Ulm; Paul Lundgren, Minneapolis; Walter Mackey, Cokato; Glen Nelson, Brainerd; Vern Olson, South Haven; Kenneth Palmer, Forest Lake; Robert Pyle, Minneapolis; Lester Redder, Canby; Conway Rosell, Stillwater; lthel Schipper, Wayzata; David Stanley, Breckenridge; and James Stewart, Minneapolis. Twenty of these men were World War II veterans. Only six members of this class had been members of the Pre-Vet Club; other members of the Pre-Vet Club were accepted in later classes.

The new School of Veterinary Medicine wished to accept patients to develop teaching material for the students in the clinical stage of the curriculum. Initially there was no suitable space available for handling and keeping clinical cases until the new veterinary clinic was completed in 1950. In the meantime, clinics were held in three barns for research animals located across the street from the Old Anatomy Building. The hospitalized dog cases were kept in cages along with horses in "Unit I." Cattle were housed in "Unit II" with the overflow going into the main barn, "Unit III." Surgery was performed in the Round Room of the Old Anatomy building.

TEACHING STAFF AND PROGRAM, FALL QUARTER 1950

The first class entered their senior year in the Fall Quarter of 1950. By that time, a considerable academic and Civil Service staff had been assembled. The staff of the School of Veterinary Medicine consisted of the following individuals:

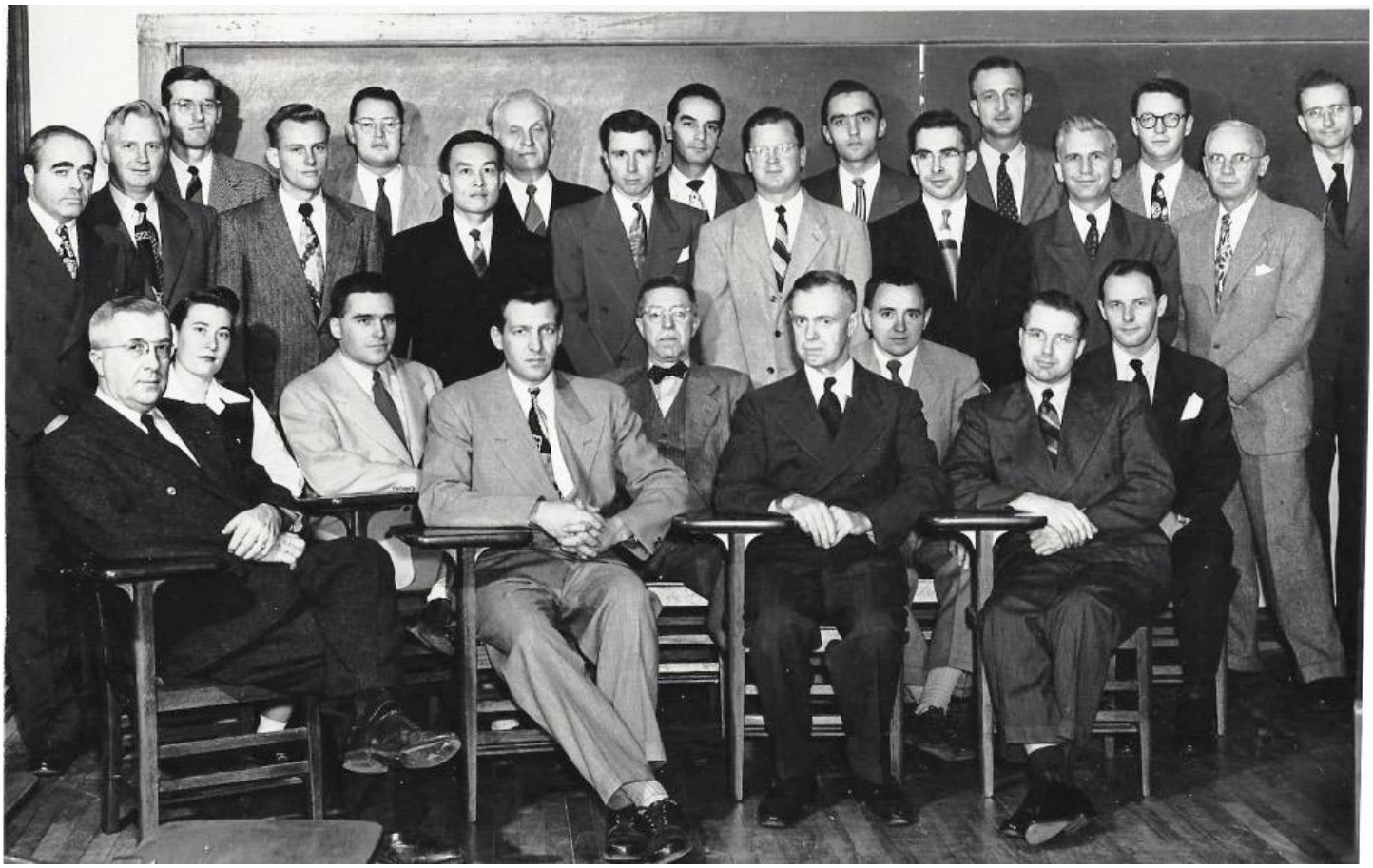
Willard L. Boyd, Professor and Chief	Thomas E. O'Dell, Instructor
John N. Campbell, Professor	William R Pritchard, Instructor
Ruel Fenstermacher, Professor	Clarence M. Stowe, Instructor
Allen Hemingway, Professor	Arden Ostergaard Calvin C. Turbes, Instructor
H. C. H. Kernkamp, Professor	James E. Williams, Research Fellow
Benjamin S. Pomeroy, Professor	Ambrose Lein, Principle Clerk
Martin H. Roepke, Professor	Rose M. Kenaley, Secretary
Henry J. Griffiths, Associate Professor	Dorthea Brightman, Secretary
Robert A. Merrill, Associate Professor	Donna M. Klett, Clerk-Typist
Jay H. Sautter, Associate Professor	Mary Baker, Junior Librarian

Alvin F. Sellers, Associate Professor	Fern Frost, Laboratory Technologist
Alvin F. Weber, Assistant Professor	Toby Lea Gitis, Laboratory Technologist
John P. Arnold, Instructor	Margaret Grady, Laboratory Technologist
David E. Bartlett, Instructor	Wilma C. Hayes, Laboratory Technologist
Reid B. England, Instructor	Florence Jones, Laboratory Technologist
Thomas M. Christison, Instructor	Mary Grace, Phillips Laboratory Technologist
Jean C. Flint, Instructor	Agnes M. Opstad, Laboratory Technologist
William J. Hadlow, Instructor	Remi J. Brooke, Laboratory Technician
John F. Henry, Jr., Instructor	Judith Leah Shapiro, Laboratory Technician
Harvey H. Hoyt, Instructor	Melvin E. Nelson, Senior Laboratory
Ralph L. Kitchell, Instructor	Kenji Horita, Principal Laboratory Attendant, Principal Laboratory Attendant
Donald G. Low, Instructor	Verner A. Severson, Principal Laboratory Attendant
William A. Malmquist, Instructor	Thomas Van Koersel, Laboratory Attendant
George W. Mather, Instructor	William T. Kehr, Herdsman
Jack E. Moulton, Instructor	Millard Jensen, Assistant Herdsman

[5]Among the senior staff members, Dr. Boyd focused on administration and planning, Dr. Campbell developed the teaching hospital, Dr. Fenstermacher was in charge of the Diagnosis Laboratory, Dr. Merrill provided full time supervision of the ambulatory clinic, and Dr. Roepke, a Biochemist, served as the school's secretary, administered the graduate program, and oversaw many of the research projects. Because these staff members had little time to devote to teaching, Drs. Griffiths, Hemingway, Kernkamp, Pomeroy, and Weber, and later Drs. Sautter and Sellers, were the senior staff most involved in the four-year teaching program. Only two members of the senior staff, Drs. Griffiths and Hemingway, and one graduate student, John Arnold, had previous experience teaching professional-

[5] *Many of the Civil Service personnel did not assist in the teaching program but instead limited their work to research projects. The staff of other departments that taught courses to the veterinary students are not listed above.*

level veterinary courses. However, most of the graduate students who taught in the college were recent graduates who were familiar with the content of the veterinary courses in the 1940s.



Faculty in 1949, Seated L to R: Drs. Fenstermacher, McPherson, Spurrell, Hoyt, Kernkamp, Hemingway, Weber, Griffiths, Sautter.
Standing L to R: Drs. Mather, Olson, Brown, Moulton, Bartlett, (unknown), Korsunsky, England, Hess, Kitchell, Hadlow, O'Dell, Roepke, Christison, Prichard, Campbell, Sellers.

The veterinary staff made up for their lack of experience with enthusiasm and hard work. The graduate students took many of their courses on the Minneapolis Campus. This often-caused difficulties in meeting class schedules. Graduate students rushed from teaching a class on the St. Paul Campus to catch the intercampus streetcar that took them to a class on the Minneapolis Campus. At the completion of the class on the Minneapolis Campus, these students would have to scurry back to the St. Paul Campus to teach another class. Graduate students found it difficult to keep ahead of the veterinary students with lecture preparation, and some graduate students were accused of lecturing from the notes they had taken in their course at the medical school.
In this early period, the academic and Civil Service staff were a small, closely knit group. They became well acquainted with each other, knew where each other worked or had offices, and were aware of each other's duties and how each other were doing. Everyone knew who was taking graduate work, what courses they were taking, and what research was being pursued. If a person needed help, others in this community tried to assist him. This collegial and encouraging environment was due to Dr. Boyd, who was a kind and outgoing person. He wanted the staff to be like a large family, and he took great pains to foster civility and to make everybody feel wanted.

PROFESSIONAL EDUCATION CURRICULUM IN 1951

The curriculum was (and continues to be) designed to standards established by the Council on Education of the American Veterinary Medical Association. All members of a given class move together through the four-year curriculum. The first two years are devoted to mastery of the basic science courses. These include biochemistry, anatomy, physiology, pharmacology, microbiology, pathobiology, and parasitology. The third and fourth years are devoted to medicine, surgery, obstetrics, anesthesiology, diagnosis and therapeutic techniques, radiology, theriogenology, toxicology, clinical diagnosis and therapeutics, and other courses relating to clinical medicine. Additional courses were also required by the council. These included physiological chemistry that was taken in the department of biochemistry at the medical school, and principles of genetics that was taken in the college of biological sciences.

The college was facing two problems in the development of the professional curriculum: it needed more faculty to teach all the required courses and elective courses were also necessary for the curriculum.

The professional curriculum was established and approved by the Council on Education of the American Veterinary Medical Association for the first class of the College. The Profession Education Curriculum 1947-1951 Table is a descriptive list of the courses. All courses were required for the D.V.M. degree. The college had not developed any elective courses for the curriculum. A total of 45 faculty members taught these required courses and graduate courses.

DEDICATION OF THE VETERINARY CLINIC

On October 25, 1950, the new veterinary clinic was dedicated in an impressive ceremony held in Coffey Hall Auditorium. President of the University James Morrill presided, Vice President Malcom Willey made the dedication, and President Emeritus Walter Coffey gave the invocation. The featured speaker was Dr. W.A. Hagen, dean of the New York State Veterinary College at Cornell University. His presentation was entitled, "Veterinary Medical Education - Its Evolution and Its Present Status."

Following the dedication, an open house was held at the new veterinary clinic. Staff members were present to guide visitors through the facilities and displays of equipment. When Dr. Hagen arrived a day before the dedication, he was given a V.I.P. tour of the veterinary facilities. (In such tours, the good points were emphasized, and the poorer areas were bypassed.) Later that evening, Dr. Hagen returned to the veterinary clinic alone and gained admittance. He went through every drawer and cabinet in the clinic. Dr. Hagen looked at every piece of equipment and all the supplies the new veterinary school had acquired for the clinic. There is little doubt Dr. Hagen relayed his findings to the members of the AVMA Council on Education who, as the accrediting body, were scheduled to inspect the new school in a few months.

The new veterinary clinic consisted of two floors and was built on the side of a hill. The upper-street level floor housed the Small Animal Clinic, the director's office, a business office, staff offices, clinical laboratory, and a classroom. The building also contained sleeping rooms for students assigned to after-hours duty. The lower floor of the new building contained the large animal clinic, staff offices, a conference room, a drug and supply room, a garage, and a research room. The building also contained student and staff locker rooms for men. No locker rooms or other facilities then existed for women students or staff.

Dr. John N. Campbell was the director of the clinic and supervised the clinical training program.

He managed the clinic's business operations. As director of the clinic, Dr. Campbell supervised the clinical teaching program and assigned the teaching duties to clinical staff. Dr. Campbell delegated the supervision of the daily operations of the Small Animal Clinic to Dr. Mather. Drs. Pritchard, Hoyt, and Arnold served at various times in the same capacity in the large animal clinic. Dr. Robert Merrill operated the ambulatory clinic under the supervision of Dr. Campbell.

The Small Animal Clinic staff consisted to Dr. George Mather, Donald Low and Rei England. When the school started no staff member was designated as surgeon in the Small Animal Clinic. However, Drs. Mather and England generally performed the more difficult procedures.

The Large Animal Clinic staff was Drs. William Pritchard, Harvey Hoyt, and John Arnold. In the Large Animal Clinic, Drs. Pritchard and Hoyt were assigned the medical cases, Dr. Arnold was responsible for the large animal surgical cases, and Drs. Bartlett and Spurrell were assigned the obstetrical cases. Dr. Spurrell also served as radiologist for both clinics.

Much of the equipment in the School of Veterinary Medicine was World War II surplus that had been stored in a large warehouse at the Rosemount Experiment Station. Practically all the chairs, desks, tables, and lockers in the

Temporary East of Haecker (T.E.H.) and the veterinary clinic were war surplus painted in the army olive-drab color. Most of the other supplies at the new school were also war surplus painted in the same olive-drab color. Students were furnished with army surplus coveralls, boots, and Turkish towels.

The clinic was essentially closed on Saturdays and Sundays. No classes were scheduled on Saturdays and, although they were officially responsible for the care of their hospitalized patients on weekends, senior students were frequently excused from these duties by senior staff members. One staff member was regularly assigned to weekend duty for the Small Animal Clinic, and one was assigned for the Large Animal Clinic. They were usually not notified a student had been excused, and when students did not show up before noon the staff member would have to care for the patient. In addition, staff members had to answer the telephone on the weekend. The staff member on large animal duty also had to take the weekend ambulatory calls.

During the school year, students were assigned to the pharmacies as part of the rotation system. Dr. Stowe and Dr. Hammond of the pharmacology staff were alternately assigned to supervise the students in the pharmacy where solutions were prepared, and drug mixtures were compounded. The students also cleaned instruments, prepared and sterilized surgical packs, and sterilized solutions.

Students were not required to take clinics during the summer months. However, the clinics could not afford to operate only nine months a year without losing clients. Thus, the clinic was open as usual throughout the summer vacation months. There were problems in staffing the clinics over the summer because staff members took vacations and graduate courses during those months. In the Small Animal Clinic, the diversity of the staff minimized the scope of these problems. In comparison, there were only two clinicians assigned to handle the Large Animal Clinic. Drs. Hoyt and Arnold both had to work mornings, and they would alternate taking their vacation time during the afternoons. Because of patient commitments, they often were not able to leave the clinic until after 2:00 p.m. in the afternoon of their vacation day.

The new veterinary clinic building was designed by architects who were not familiar with the needs and uses of an animal clinic. For example, the design did not include ventilation capable of providing intake of fresh air for animals or for the removal of urine and fecal odors. The air in the small animal cage rooms was always stale, and odors would linger in the hallways. In the Small Animal Clinic, the doorway provided the only ventilation for the drug and supply room located at the foot of the stairs. The situation was very uncomfortable during the summer, and the room was a poor place to store drugs. The cattle ward was difficult to walk through in the morning because of the odors. Some years later, staff members discovered the ventilation fan for the area was running backwards. But even after this error was corrected, the ward was still an extremely uncomfortable place to work.

Animals had difficulty walking in the large animal treatment area and halls. The surface was smooth and hard, and animals could not get traction on the floor. The conditions were made even worse when the floor was wet. Horses would fall on their knees, strike their mouth on the floor, and often break off their front teeth. Cattle would lose control of their hind legs and "spraddle" on the floor. These incidents were difficult to explain to the owners of the injured animals. The floor was covered with the same type of surface used in packing plants. However, designers did not recognize that animals do not walk on the floors in packing plants. The administration finally recognized the problem and spent $1,500 to paint a rubber surface on the floor. Unfortunately, the rubber coating would wash off when the floors were cleaned. Eventually, a machine with chain flails was used to beat the floor and roughen the surface.

When weather permitted, restraining horses and cattle in a recumbent position, or "casting," was done on the grass in the courtyard. During the winter months or in inclement weather, the animals were placed on a large animal operating table. A tanbark casting area later was constructed. The area consisted of a ring approximately 20 feet in diameter with sandbags around the outer edge. The inside of the ring was covered with an 8-inch layer of tanbark that made a soft landing for the animal. Although an attempt was made to keep the tanbark damp, the animal that was being "cast" or thrown on the tanbark would usually stir up a cloud of dust. The dust would cover both the animal and the persons doing the casting. This arrangement was not very conductive to antiseptic surgery.

RESPONSE TO UNEXPECTED CASE NUMBERS

A major problem was the small number of cases admitted to the hospital, especially in the large animal clinic. One remedy was an arrangement with Bartusch Packing in St. Paul that increased the bovine cases. Bartusch purchased cattle from farmers for slaughter and a number of these animals were ill or had medical problems. For several years approximately three animals from Bartusch Packing were kept in the Large Animal Clinic. It took years to increase the hospital cases to an adequate level.

The Small Animal Clinic proved inadequate to accommodate the large number of household pets that were presented. Part of the rise in cases resulted from increased referrals by Twin City area practitioners.

ACCREDITATION

Students must graduate from an accredited veterinary school or college to qualify to sit for state licensing examinations. The Council on Education of the American Veterinary Medical Association periodically visits institutions to determine whether they meet the standards for accreditation. They report their findings and make a recommendation to the Executive Board of the American Veterinary Medical Association. That board ultimately decides whether an institution will be accredited and, if accredited, whether it will receive full or probationary accreditation.

One of the major challenges faced by the School of Veterinary Medicine was accreditation. Members of the Council on Education scheduled their initial inspection on March 1 and 2, 1951, in order that, if accreditation was granted, the school's first graduates would be able to sit for state licensing examinations. The Council members made a thorough inspection of the physical plant, including laboratories, clinics, and equipment, and reviewed teaching aids and the library. They interviewed staff members at all levels and conferred with President Morrill and other administrative officials of the University.

The council placed the School of Veterinary Medicine on public probation, which is the lowest level of probationary accreditation. Public probation meant the school had one or more major deficiencies. The council's primary criticism was the school "was not a major administrative unit in the University but was subordinate to the Dean of the Department of Agriculture." The Executive Board of the AVMA supported the council's criticism in this regard by voting to withdraw public probation in April 1952 unless substantial changes in the college's administration did not occur.

The debate was eventually taken to the meeting of the AVMA House of Delegates where there was disagreement over AVMA's "essentials of an acceptable veterinary college." The relevant AVMA provision read as follows:

> ***A school or college of veterinary medicine should find its most advantageous environment if it is a part of an accredited institution of higher learning. In the best interests of both the institution and the veterinary medical school, the latter requires the same recognition and autonomy as other professional schools. A veterinary medical school may be fully accredited only when it is operated as a major administrative division of the parent institution and under the direction of a dean who is a veterinarian.***

Most of the members of the Council on Education and Executive Board believed the position of the School of Veterinary Medicine in the University of Minnesota did not meet the criteria set forth by the American Veterinary Medical Association(A.V.M.A.) After debate, the House of Delegates voted to support the action taken by the council and the board by requiring the administrative head of Minnesota's School of Veterinary Medicine to be directly responsible to the president of the University.

ADMINISTRATIVE CHANGES

Dr. Willard L. Boyd retired as director of the School of Veterinary Medicine on June 30, 1952, approximately three months before his 68th birthday. His long service to the University was unusual as the University regulations required staff in administrative positions to "step down" at age 65. Because the school was in a critical stage of development and no successor had been found, the Board of Regents approved a request that Dr. Boyd remain in the post. Dr. Boyd agreed to remain until he reached age 68. However, Dr. Boyd decided to retire just prior to that time as he was president-elect of the American Veterinary Medical Association and would become president in August 1952. Dr. Boyd wished to have sufficient time to attend the various meetings and events that were the function of the office.

DR. MARTIN ROEPKE APPOINTED ACTING DIRECTOR

When Dr. Boyd retired, Dr. Martin Roepke, a biochemist, was appointed to serve as acting director of the School of Veterinary Medicine. He was familiar with the way the school operated because he had served as its secretary and had administered most of its graduate and research programs. However, Dr. Roepke did not have a veterinary degree, and the Council on Education of the American Veterinary Medical Association looked upon his appointment as an act of defiance by the University. Many members of the veterinary profession were further irritated by the fact that the search committee appointed by Dean Bailey did not include any veterinarians. This flaw prompted Dr. Carl Schlotthauer of the Mayo Clinic to write to Dr. C. W. Mayo, a member of the Board of Regents. As the result of this letter, Drs. Harvey Hoyt and George Mather, members of the school's staff, were added to the search committee.

DEAN BAILEY RETIRES

Dr. Bailey, Dean of the College of Agriculture, Forestry, Home Economics, and Veterinary Medicine, retired on December 31, 1952. He was famous world-wide as a cereal chemist and had received many honors for his contributions to the cereal industry. But he was not regarded as a friend of veterinary medicine, and he lacked an understanding of the way veterinary medicine should be taught at the professional level. He did not seem to understand that graduates must pass an examination to become licensed, and he resented the involvement of an outside agency like the Council on Education that established requirements to accredit a school of veterinary medicine.

Dean Bailey's resignation was preceded by the resignation of Dean Henry Schmitz. Dean Schmitz was the "other dean" on the St. Paul Campus who reported directly to Dean Bailey. The resignation of both deans gave President Morrill the opportunity to revamp the administration on the St. Paul Campus. He promptly reported the resignations to the Council on Education of the American Veterinary Medical Association. He also informed the council that the name of the Department of Agriculture would be changed to the "Institute of Agriculture." The Council on Education hoped these changes would also include an administrative restructuring so the head of the School of Veterinary Medicine would report directly to the President of the University and thus remove the last major obstacle to full accreditation.

The St. Paul Campus administration was eventually reorganized as follows:

- Harold Macy, dean of the Institute of Agriculture
- R. J. Sloan, director of Agricultural Experiment Station
- A. A. Dowell, director of Resident Instruction
- Paul E. Miller, director of Agricultural Extension
- T. M. Fenske, assistant to dean of institute and assistant dean in charge of School of Veterinary Medicine

The administration hoped the Council on Education would determine these changes met the AVMA's criteria on administration. Although the council regarded the reorganization as a move in the right direction, the University still did not meet the AVMA's requirements.

DEAN MACY MOVES TO SUPPORT THE SCHOOL OF VETERINARY MEDICINE

One of the major problems Dr. Macy inherited when he became dean of the Institute of Agriculture was the School of Veterinary Medicine. Little progress had been made in the effort to find a replacement for Dr. Boyd. Dr. Roepke, as a non-veterinarian, had received little support as the acting director from the veterinary profession in Minnesota. The school was, of course, having problems receiving accreditation by the AVMA. Students were concerned they would not be able to take licensing examinations. Younger staff members worried the school would fail. These problems and this apprehension lowered morale of the student body and faculty alike.

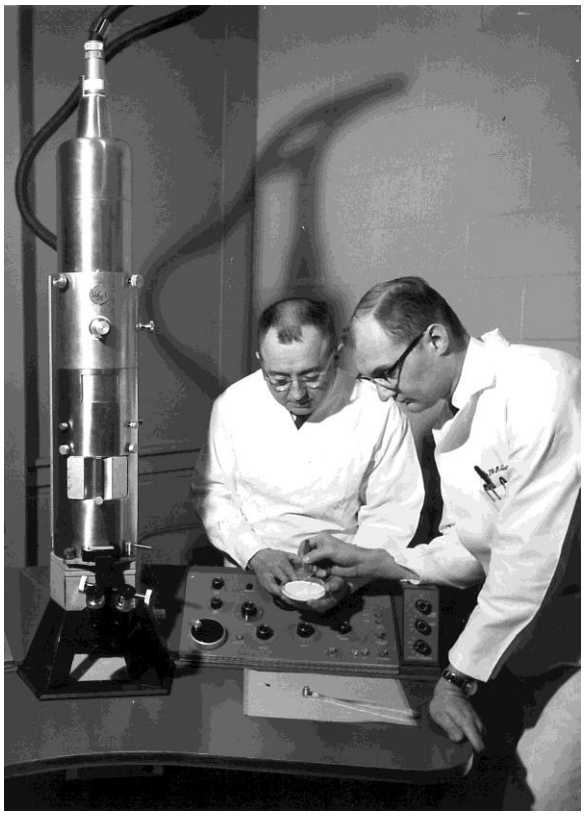
Soon after taking office, Dean Macy met with some of the junior faculty who had received offers from other veterinary schools. Sitting at his desk, he looked the young staff members in the eye and promised to stake his reputation as dean on making the School of Veterinary Medicine one of the best schools in the country. Dean Macy was taken at his word and the young staff members turned down the offers to teach at other institutions.

KERNKAMP APPOINTED ACTING ASSISTANT DEAN

In June 1953, Dr. Roepke requested to be relieved of his duties as acting director. Dr. Roepke was an important member of the staff and an exceptional research worker. Unfortunately, as a non-veterinarian, he had been placed in an untenable position as acting director.

Dr. H. C. H. Kernkamp was appointed acting assistant dean of the School of Veterinary Medicine in June 1953. Dean Macy also appointed an administrative committee made up of Drs. Ralph L. Kitchell and William R. Pritchard to assist Dr. Kernkamp. When Dr. Pritchard left the University, Dr. Harvey H. Hoyt took his place on the administrative committee.

Dean Macy asked the staff of the School of Veterinary Medicine to propose a table of organization. At the time, the school was informally organized along discipline lines with a staff member designated with responsibility for each discipline. These included veterinary anatomy; veterinary physiology; veterinary pathology; veterinary parasitology; veterinary bacteriology; and veterinary medicine, which included all the clinical areas that made up



Al Weber (L) Dick Dierks (R) electron Microscope ~1963

Dr. Czarnecki

Al Weber (L) Terry O'Leary (R)

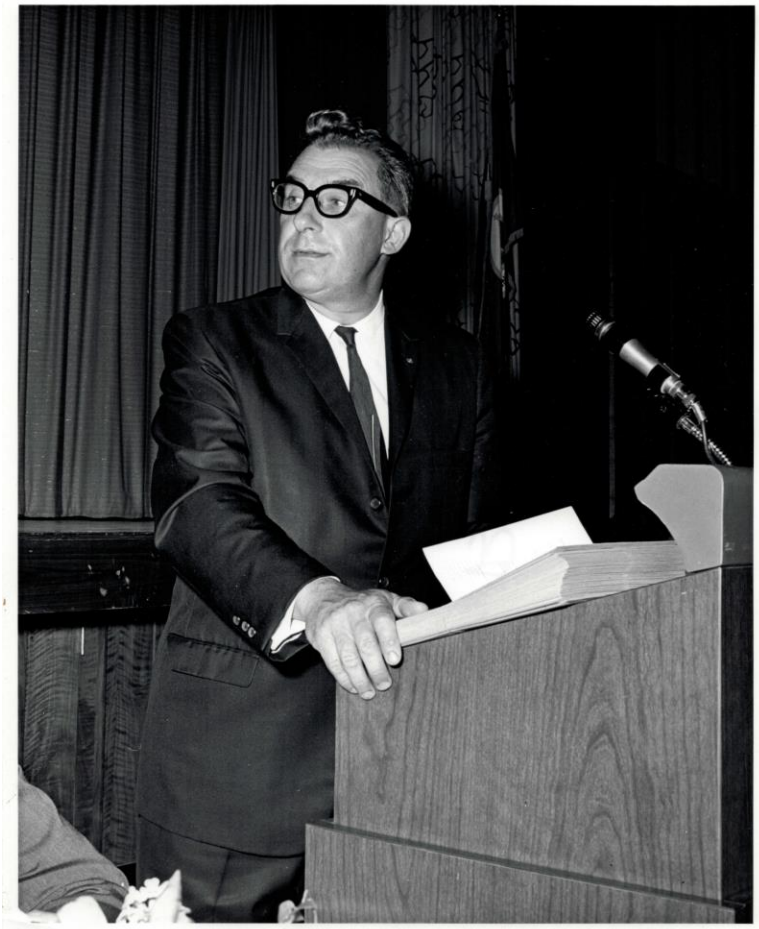
roughly the last two years of the curriculum. Pharmacology and physiological chemistry were taught in the Medical

School.

In response to Dean Macy's request, the staff developed the following divisions in the college:

- Veterinary Anatomy, headed by Dr. Ralph L. Kitchell
- Veterinary Physiology and Pharmacology, headed by Dr. Alvin F. Sellers
- Veterinary Pathology and Parasitology, headed by Dr. Jay Sautter
- Veterinary Bacteriology, headed by Dr. B. S. Pomeroy
- Veterinary Obstetrics, (vacant)
- Veterinary Medicine and Clinics, headed by Dr. John N. Campbell
- Veterinary Surgery and Radiology, headed by Dr. John P. Arnold

DR. W.T.S. THORP BECOMES DIRECTOR



Dean Thorp

Dean Macy intensified the search for a successor to Dr. Boyd. The entire faculty had the opportunity to propose and interview candidates. This process was in stark contrast with the previous search for a director conducted by Dean Bailey, where there was little contact between the faculty and the candidates. Dr. W.T.S. Thorp, who was one of the last candidates to visit the campus, was eventually selected and appointed assistant dean and director of the School of Veterinary Medicine effective July 1, 1954.

Dr. Thorp was born in Edmonton, Canada, on April 4, 1914. He received his D.V.M. in 1935 and his M.S. in 1937 from Michigan State University. He had served on the faculty of Pennsylvania State University until he joined the staff of the National Institutes of Health in 1948. At the time of his appointment at Minnesota, Thorp was chief of the section on comparative pathology and hematology and was commissioned Veterinary Director of the National Institutes of Health, U.S. Public Health Service, in Bethesda, Maryland. His rank at the institute was equivalent to that of colonel in the U.S. Army.

Dr. Thorp's first challenge was to resolve the school's problems with accreditation. Members of the AVMA Council on Education had visited the school in early April 1954 and sent their report to the University in June. Notwithstanding improvements that had been made, the report contained strong criticism of the school's administrative organization. It also identified deficiencies in meat and milk hygiene courses as the weakest of any veterinary school; the ambulatory clinic did not have enough cases and provided no service on Saturdays and Sundays; the school needed more staff; the director of clinics needed to be more involved in teaching; and the report questioned the Department of Veterinary Science.

The visiting team was quite displeased with the progress made by the School of Veterinary Medicine since the 1951 accreditation inspection. One of the members expressed privately, "Minnesota started with the best nucleus of a faculty of any of the new schools and has made the least progress." The deficiencies had to be corrected by May 1955, or public probation would be withdrawn.

Many staff members believed at least some of the criticism was due to the failure of the visiting inspection team to obtain sufficient input from the faculty. Some of the faculty members were not available for interviews by the members of the council. This did not help the school's cause, as some members of the inspection team regarded their absence as a snub.

Dr. Thorp wasted no time in working to correct the deficiencies and respond to the criticism of the Council on Education. In an October 4, 1954, letter to Dr. R.A. Rabrassier, chairman of the council, Dr. Thorp promised to make the following changes by July 1, 1955:

- The Department of Veterinary Science would be eliminated.
- The Division of Veterinary Diagnostic Laboratories would be established with Dr. Fenstermacher as head, and Dr. Donald Barnes would be added to the division's staff.
- The Division of Veterinary Bacteriology would be renamed Division of Veterinary Bacteriology and Public Health.
- Dr. Henry Griffiths would be appointed assistant director of School of Veterinary Medicine and professor of parasitology.
- The school would hire four additional staff members.
- The school's facilities would expand, including appropriations of $8,000 to replace small animal cages and $6,000,000 for an addition to Veterinary Science Building.

Dr. Thorp went to the Minnesota legislature to obtain funds for more buildings and facilities. When funds were initially appropriated to construct the original Veterinary Science Building, a member of the University's administration had stated that "this (appropriation) would finish the major building programs of the school." Dr. Thorp began a campaign to overcome this statement and to make known the needs of the school to legislators and the people of Minnesota. He spoke with members of the legislature, the University administration, farm organizations, commercial clubs, members of the veterinary profession, the public, and the media throughout the state. He revealed that the School of Veterinary Medicine had the poorest research facilities of any school in the country. At the annual meeting of the Minnesota Veterinary Medical Association in February 1957, Dr. Thorp asserted that the school needed $3,000,000 to $3,500,000 to provide the necessary teaching, research and service buildings.

Thorp's efforts to obtain more buildings, facilities, and staff for the School of Veterinary Medicine received the full support of Dean Macy and President Morrill. Once the school was created, President Morrill was committed to making it a success. When Dr. Thorp requested more support for the School of Veterinary Medicine, President Morrill was very helpful and recommended the requests to the Board of Regents.

Dr. Thorp's efforts were aided by many people, including legislators such as Senator John Olson and Representative Delbert Anderson. In 1957, the legislature appropriated $600,000 for a Diagnostic Laboratory (which was completed in 1960) and an additional $600,000 for the first addition to the Veterinary Science Building (which was completed in 1958). In 1961, the legislature appropriated $616,000 to build another addition to the veterinary clinic building. This appropriation was matched by $500,000 from Title I funds. In 1967, the legislature appropriated $720,000 to add the Diagnostic and Research Laboratory to the Diagnostic Laboratory. In 1967, the legislature appropriated $171,000 for Phase I planning of a building that would be shared by Animal Husbandry and Veterinary Medicine, and $522,182 to cover a deficiency in the funds for the addition to the veterinary clinic. In 1971, $121,000 was appropriated to develop construction plans for an addition to the veterinary clinic (Phase II). Finally, the legislature appropriated $10,000,000 for the construction of the Phase I building.

SCHOOL OF VETERINARY MEDICINE BECOMES A COLLEGE

Dean Macy lived up to his promise to support efforts to make the School of Veterinary Medicine one of the best veterinary schools in the country. Dean Macy decided the time had come to elevate the School of Veterinary Medicine to the status of a college. President Morrill agreed and made this recommendation to the Board of Regents.

On May 10, 1957, the regents voted that:

> ***"The School of Veterinary Medicine, now a unit of the Institute of Agriculture, be given full and separate status as a college for professional training and research in veterinary medicine, that the administrative head of the College be a dean responsible to the president of the University in respect to administration and budget and that W. T. S. Thorp be designated Dean. "***

With the elevation of the school to a college, the former divisions of the school became departments in the college effective July 1, 1957. These changes raised questions as to the relation of the College of Veterinary Medicine to the Institute of Agriculture regarding space, services, and research on the St. Paul Campus. The respective deans of the Institute of Agriculture and College of Veterinary Medicine eventually agreed on terms for location of buildings, services provided by the cashier's office, admissions and records services, and operation of the farm shop. Finally, academic employees of the College of Veterinary Medicine remained eligible for research funds from the Agricultural Experiment Station.

The elevation of the School of Veterinary Medicine to the College of Veterinary Medicine, so that the dean reported directly to the president, met the administrative requirements previously imposed by the AVMA's Council on Education. Thereafter, much to the relief of all concerned, full accreditation was granted by the AVMA.

Research continued to be an important part of the programs of the College of Veterinary Medicine. The first new research projects in the college included a grant from the U.S. Air Force to study the regulation of temperature control, and a commercial grant to study trichloroethylene extracted soybean meal.

Dr. Thorp worked hard to increase the number of research grants and other sources of funding for the College of Veterinary Medicine. His contacts in the National Institutes of Health and other federal agencies were invaluable in this regard. The first major research project obtained by the college from a government agency was a grant to Dr. Francis A. Spurrell from the Wright Air Development Center, at Wright-Patterson Air Force Base in Ohio, to determine the effects of irradiation on large animals. Burros were used in the project, which spanned from July 1, 1958, to January 1, 1962. The total budget for the project was $225,000. Dr. Spurrell also obtained a large grant to study hip dysplasia in dogs.

Other large projects in the early days of the college involved the porphyria project and later the bovine leukemia project that was supported by National Institute of Cancer funds and had an initial budget of $300,000. In 1960, the Agricultural Experiment Station funded the purchase of an electron microscope unit used in research under the supervision of Dr. A. F. Weber.

ADMINISTRATIVE PROBLEMS IN THE COLLEGE

When Dr. John Campbell resigned, Dr. Harvey Hoyt was appointed Director of Clinics. Dr. Hoyt unfortunately became ill and died in 1959. Dr. Donald Low was assigned Director of Clinics in 1960.

Dr. Thorp had worked extremely hard to attain full accreditation and elevate the school to the rank of a college. The staff grew, additional research grants were obtained, the graduate program expanded through National Institutes of Health Training Grants, and an international program was developed. The class size grew through NIH grants and new facilities were built and equipped. At the same time, Dr. Thorp developed an excellent relationship with veterinarians and legislators throughout the state.

Dr. Thorp's success at Minnesota attracted national attention. He was appointed to many committees and offices of national professional associations. The responsibilities of these positions increasingly took Dr. Thorp away from the campus, and he began to lose touch with events at the college.

National Unrest of Late 1960's Leads To Questioning of Authority

During this time, student unrest and demonstrations became commonplace on the University's Minneapolis campus. While students on the St. Paul campus did not demonstrate, students in the College of Veterinary Medicine became more assertive, questioned the authority of faculty members, and challenged the content of courses. Students and faculty alike began to question decisions made by the University administration. One tipping point was faculty resentment over denial of tenure for pharmacologist Grace Gray, Ph.D. The awkward evaluation

1961 Veterinary Clinic Christmas Party, left to right
Front: Dr. Dale Sorensen, Dr. Wm. Cates, Dr. Ira Gourley, Dr. Don Low, Dr. LaRue Johnson, Ronnie Low, Dr. Cheong Chang Kook, Lauren Madden, Dr. Bee Hanlon.
Back: Lawrence Sirinek, Carol Bergeland, Denise Verbrugghen, Alice Stuber(seated), Donna DenBoer, Dr. Ronald Engel, Bertha Cowan, Dr. John Arnold, Dr. Donald Simes, Dr. Lawrence Rajendra Singh, Dr. I.H. Siddique, Katherine Smith, Dr. Harvey Hoyt, Fern Bates, Barbara Nelson, Dr. George Mather, Dr. Richard Herschler, Arden Ostergaard, Shirley Anderson, Dr. Vic Perman, Dr. Raimunds Zemjanis.
From Hanlon's College of Veterinary Medicine General Photo Album No. 1 (Page23).

process applied to Gray's tenure request by Physiology and Pharmacology head Clarence Stowe eventually led to his demotion. She did, finally, become tenured.[6]

In the fall of 1970, the Department of Veterinary Physiology and Pharmacology drafted a constitution to define the administration and faculty's respective roles in conducting department affairs. The constitution was forwarded to Dean Thorp on October 3, 1970. The Department of Veterinary Pathology and Parasitology subsequently developed its own constitution. On November 10, 1970, Dean Thorp called a special faculty meeting to consider the

[6] *Dr. John Arnold interview with Dr. Paul Cox on 11/23/1987 12:17 minutes by MVHM*

need for a college, rather than departmental, constitution. The faculty voted to establish a constitutional committee

Unknown Minnesota Legislator , Minnesota Governor Wendell R Anderson,
Dr. Stan E. Held, Dr. Dale Sorensen

that included the following faculty members: Drs. William Bemrick, Paul Hammond, Robert Lindorfer, Caroline Czarnecki, Victor Myers, and Vaughn Larson. Bemrick and Hammond served as co-chairs of the committee. When Dr. Hammond left the University, Dr. Everett Short took his place as co-chair.

Faculty Petition Leads To Dean Thorp Resignation

In November 1970, some members of the faculty circulated a petition demanding a change in the administration of the College of Veterinary Medicine. The petition was presented to Vice President of Academic Affairs William G. Shepherd, who ordered the formation of a committee to investigate the charges and complaints lodged against Dean Thorp. After completing the investigation, the committee concluded that regardless of whether the accusations were true, the dissatisfaction in the college was so extensive that Dean Thorp could no longer function effectively as dean. On March 24, 1971, President Malcolm Moos and Dr. Thorp agreed on a transition plan for the administration of the College of Veterinary Medicine.

PROFESSIONAL EDUCATION IN 1961 VS. 1970'S

The Curriculum of Professional Course Comparison 1963 vs 1971 Table is a listing and description of the courses at the college of 1971 compared to 1963. The curriculum gradually changed to allow students to use more elective courses to fulfill the requirement of the D.V.M. degree. The table shows the reduction in required courses for the D.V.M. degree and expansion of elective courses for the D.V.M. degree. A total of 59 elective courses were developed during that past decae.
During the past decade the 1960's, the college also increased the number of faculty by approximately 50, to 66.

Professional Education in 1970's

A major curriculum revision was initiated in the early '70s. This was made possible because of the elective courses that had been developed during the late '60s. While students had been taking some elective courses, the College now permitted students to elect either a small animal option, a large animal option, or a mixed animal option. These required at least 17 credits in elective courses.
The curriculum was also reviewed and revised periodically. In 1972 and 1973 the college initiated a curriculum review which was adopted by the faculty and went into effect in 1975.

Academic policies by 1970

Students admitted to the first-year class are sent complete registration information by the Office of Professional and Undergraduate Education. Each student is required to provide his or her own microscope which meets the minimum specifications announced at the time of acceptance. Used microscopes must be examined and approved before purchase by designated staff members. In addition to a microscope and textbooks, the students will be expected to purchase certain special items of clothing and some instruments.

DR. DALE K. SORENSEN APPOINTED ACTING DEAN

Effective January 1, 1972, Dr. Sorensen was appointed acting dean of the College of Veterinary Medicine to replace Dr. Thorp. Dr. Sorensen was born on July 21, 1924, in Centuria, Wisconsin. He obtained his D.V.M. from Kansas State University in 1946, and he had received his M.S. in 1950 and Ph.D. in 1953 from the University of Wisconsin. Prior to his appointment, Dr. Sorenson had been professor and head of the Department of Veterinary Medicine. This was a challenging time in the administration of the College, and the faculty had become divided during the final months of Dr. Thorp's regime. Deep animosity had developed within the College. Dr. Sorensen was able to create some healing among the faculty to allow the College to make progress on its mission and construction projects.
In the meantime, construction plans for the Phase II building program had to be finalized and construction funds requested from the 1973 legislature.
Phase II involved construction of a new small animal hospital (which became the Lewis Hospital for Companion Animals), administrative and faculty office suites, remodeling of the large animal hospital, and remodeling of the Veterinary Science Building. The college had to mobilize public and legislative support for the building projects. The 1971 legislature had appropriated $120,000 for preliminary planning of Phase II facilities. Dr. Sorensen was a friend of the Minnesota Senator who oversaw construction and was also helpful in funding Phase Three, the next planned and major project that is the current hospital building.
A search committee for a new dean was appointed with Dr. Wesley Spink, professor emeritus of the Medical School, serving as chairman. Dr. Spink was an authority on brucellosis (or undulant fever) in humans and therefore was familiar with brucellosis in animals. He had worked with veterinarians and was supportive of the College of Veterinary Medicine. The committee interviewed several candidates who also presented lectures at the college.
A new Dean was appointed in December of 1972, but current commitments delayed his arrival and Dr. Sorensen continued providing assistance supporting the funding and major ongoing construction project of the new hospital including Building Four, which came later providing ample space for research and teaching and other projects. It was the largest building in the Veterinary College.

DR. SIDNEY A. EWING APPOINTED DEAN

Dr. Sidney Allen Ewing was appointed dean during the fall of 1972. He was born on December 1, 1934, on the campus of Emery University, Atlanta, Georgia. Before his appointment on December 1, 1972, Dr. Ewing had been heading of the Department of Veterinary Parasitology, Microbiology, and Public Health in the College of Veterinary Medicine at Oklahoma State University. He had earned his B.S.A. and D.V.M. from the University of Georgia, his M.S. from the University of Wisconsin, and his Ph.D. from Oklahoma State University. Dr. Ewing had also held teaching and research positions at the University of Wisconsin, Kansas State University, and Mississippi State University. Following the announcement of his appointment, Dr. Ewing made several trips to Minnesota in preparation for his new position. He recognized he was assuming deanship of a college that had various factions among the faculty, and where faculty and staff alike were apprehensive about the new administration.

The Council on Education of the AVMA had criticized the college, stating "faculty coordination seems to be lacking. The designated management structure appears to have a limited role in leadership and needs strengthening. There may be excessive departmentalization and a need would appear for creating a more effective management structure."

Dr. Ewing quickly appointed a committee to make recommendations on the organization and administration of the college. The committee was chaired by Dr. Carl Jessen and included Drs. Kenneth Johnson, Keith Loken, and Kirk Gelatt. After consulting with faculty and staff, the committee recommended streamlining the administrative structure.

The following spring, Dean Ewing announced that effective July 1, 1973, the existing nine departments would be merged into two departments – Veterinary Biology and Veterinary Clinical Sciences – and the collegiate administration would be reorganized into three programmatic areas: veterinary medical services; professional and undergraduate education; and veterinary research and graduate education. The objective behind these changes was to emphasize programmatic areas rather than academic disciplines, thus enhancing the exchange of ideas between faculty, and multiplying interdisciplinary projects.

Previously departments were siloed and viewed as separate empires. The Vietnam War and social change of the 1960s brought a generational change where the dean was no longer the sole decision maker, now the faculty wanted input. Similar changes occurred in other veterinary colleges.[7] After soliciting faculty opinion on existing staff members who might be suited for the administrative positions, Dr. Ewing made the following appointments:

- Veterinary Biology, Dr. Harold Dzuik, Chair
- Veterinary Clinical Sciences, Chair -Dr. Dale K. Sorensen, Chair
- Veterinary Medical Services, Dr. Timothy Brasmer, Associate Dean
- Veterinary Professional and Undergraduate Education, Dr. Everett C. Short, Associate Dean
- Veterinary Research and Graduate Education, Dr. Benjamin S. Pomeroy, Associate Dean

The Department of Veterinary Clinical Sciences created eight divisions to carry out its teaching and service commitments:

- Large Animal Medicine
- Large Animal Surgery
- Small Animal Medicine
- Small Animal Surgery
- Theriogenology
- Radiology
- Specialties
- Continuing Education and Extension.

The Department of Veterinary Biology was organized and administered by electing coordinators for each course who would provide leadership in teaching the courses.

Soon after announcing the reorganization, Dean Ewing was surprised with a" gift" presented by a faculty member of the Theriogenology Division at a collegiate banquet. The "gift" was a freeze-dried bull's penis. The presentation was made with fanfare and levity in the otherwise solemn setting. Dr. Richard Schultz read a "poem" that was open

[7] *Academic Health Center Oral History Project: https://ahc-ohp.lib.umn.edu/wp-content/uploads/2014/05/COsborne.pdf*

to interpretation and invited Dean Ewing to respond. Dean Ewing accepted the "gift" and, while displaying it to the audience, commented that he recognized the complexity of its function as a structure designed for delivery. The observation won him a round of applause.

COLLEGE CONSTITUTION APPROVED BY BOARD OF REGENTS

The constitutional committee formed in the fall of 1970 developed a document that defined the powers and duties of the college's dean, department heads, and faculty. This constitution also defined the organization and duties of the faculty, student, civil service, and administrative councils, and outlined the composition and responsibilities of all the college's standing committees. Dr. Ewing provided his comments on a draft of the constitution, and, after extensive rewriting, review, and revision, the constitution and bylaws of the College of Veterinary Medicine were approved by the Board of Regents in February 1973.

ADMINISTRATIVE CHANGES BY DEAN EWING

After two years, the strong tradition of academic-centered department administrations at the University of Minnesota caused the faculty to become dissatisfied with the two-department structure of the College of Veterinary Medicine. The faculty felt it was difficult for department chairs to become familiar enough with all the areas covered in their respective departments to adequately represent faculty concerns to the dean. The faculty was also concerned that the decision-making process had become too centralized. In response to faculty calls to change the departmental structure, Dean Ewing reorganized the college, effective July 1, 1976, as follows:

- Veterinary Biology, Dr. Harold Dzuik, Chair
- Veterinary Pathobiology, Chair; Dr. Kenneth Johnson, Chair
- Large Animal Clinical Sciences, Dr. Dale K. Sorensen, Chair
- Small Animal Clinical Sciences, Dr. Carl A. Osborne, Chair
- Research and Graduate Education, Dr. Raimunds Zemjanis, Associate Dean (Dr. Zemjanis replaced Dr. Benjamin S. Pomeroy, who had accepted the responsibility of Director of Alumni and Public Affairs)

To even the number of faculty between the two clinical departments, Radiology and Clinical Specialties were merged into Small Animal Clinical Sciences, while Public Health and Continuing Education and Extension was placed within Large Animal Clinical Sciences.

CONTINUED PROBLEMS WITH ACCREDITATION

The AVMA Council on Education visited the College of Veterinary Medicine in October 1974. The following spring, the council informed the University that the status of the College would be reduced from full to probationary accreditation the following September. The council recommended:

- increased clinical case material for in-hospital instruction of food animal and equine medicine and surgery
- development of additional field service around food animal and equine practice, and greater student exposure to patients during the four years of instruction
- development of a program for instruction in laboratory animal medicine
- increased faculty and opportunities for their professional development.

AMBULATORY SERVICE STARTED

The council scheduled its next visit for 1978. The council's demotion of the college's accreditation status gave renewed credence to the college's earlier requests for additional resources. The University administration became more receptive to requests from the College of Veterinary Medicine. For example, the University facilitated the creation of a free ambulatory service for sick cattle within a 50-mile radius of the veterinary clinic. The service, which began on a trial basis, was successful in increasing the number of patients at the clinic. In 1978, the service was expanded to include a radius of 100 miles for sick animals referred by a veterinarian. The service was available five days a week. The college also entered a special arrangement to treat sick animals from the stockyards

at South St. Paul. Additionally, the college's internship program was strengthened to improve the instructional program with greater patient contact with students. The herd health program was also expanded to give the students more experience in this field. Students traveled to Cannon Falls to study with Dr. John F. Anderson, who had several private herds on herd health programs.

CURRICULUM STUDY IN 1978 LEADS TO 4TH YEAR FOCUS ON CLINICAL ASSIGNMENTS

The college also carried out a curriculum study. Under the direction of Dr. Everett Short, the Curriculum Committee developed a new curriculum that was subsequently adopted by the faculty. The new curriculum went into effect for the fall quarter of 1978. As part of the new curriculum, all lecture/laboratory courses were presented in the first three years of the veterinary medical program. The four quarters comprising the fourth year consisted of 36 weeks of core clinical assignments, four weeks of elective assignments, and three weeks of vacation.

Dean Ewing believed increasing the food and equine medicine coursework and surgery, along with other adjustments to the curriculum, had succeeded in correcting the deficiencies identified by the council. With the agreement of the Administrative Council, Dean Ewing requested the Council on Education to reevaluate Minnesota's veterinary medical program before originally scheduled. Members of the Council on Education agreed to move their visit up a year earlier in the spring of 1978. In the fall of 1978, the council granted the College of Veterinary Medicine full accreditation.

DEAN EWING RESIGNS

By 1978, Dean Ewing had served six years as dean. While he had continued teaching and research activity in his discipline, parasitology, he wished to return to scientific research full time. He decided to resign as dean soon after he learned the college would be granted full accreditation. Ewing subsequently returned to the Veterinary College at Oklahoma State University as head of the Department of Veterinary Parasitology, Microbiology, and Public Health.

At the July 7, 1978, meeting of the Board of Regents, University President Peter Magrath reported Dean Ewing had announced his resignation as dean of the College of Veterinary Medicine effective December 31, 1978.

The College underwent several significant changes during Dean Ewing's tenure. The college operated in accordance with a constitution that prescribed the roles of the administration and faculty, fixed terms of appointment of administrators, established administrative reviews, held regular faculty meetings, and established standing committees with defined organization and responsibilities. The college operated through a close association between administration and faculty. The college was reorganized twice and had been reduced from full accreditation to probationary accreditation, and then returned to full accreditation. The curriculum was revised to increase opportunities for clinical training. The physical plant was significantly expanded to include new facilities for instruction of the basic sciences. Funds were secured to complete the extensive renovation of the Veterinary Science Building and the construction of a new teaching hospital. Although actual construction of the Lewis Teaching Hospital was completed after he had returned to Oklahoma, Dean Ewing returned to St. Paul to attend the formal dedication.

BUILDING NEEDS – RECIPROCITY

The College of Veterinary Medicine became a regional center for veterinary education. Since its establishment in 1947, the college had accepted students from Wisconsin, North Dakota, South Dakota, and Nebraska. In 1972, Acting Dean Sorensen initiated discussions with these states concerning the cost of instructing these out-of-state students. In 1973, Minnesota finalized arrangements with North Dakota and Nebraska. The college agreed to annually accept up to four qualified students from North Dakota and up to 20 qualified students from Nebraska in return for payment of a negotiated level of instructional costs.

Negotiations with Wisconsin proved more complex, as Wisconsin sought admission of a larger number of students. In 1970, the Board of Regents approved a long-range plan to accept sixty to one hundred and twenty students per year. However, the facilities would have to be obtained to accommodate these students. Discussions were held with University of Wisconsin administrators and legislators to negotiate a contract that was tentatively approved by both universities. The University of Minnesota proposed to admit 16 to 18 students from Wisconsin until the

number in the class reached eighty. At that point, the number of Wisconsin students would increase to twenty-five percent of the entering class. This agreement was never finalized or implemented.
In 1973, Governor Wendell Anderson of Minnesota and Governor Patrick Lucey of Wisconsin met and negotiated a reciprocity agreement for unlimited student exchange in higher education. Under the agreement, the University of Minnesota would admit eighteen qualified Wisconsin residents each year to the College of Veterinary Medicine. The reciprocity agreement also allowed residents of each state to attend the other's public University and only pay resident tuition.
The cost of instruction to veterinary students is much greater than tuition. Thus, Minnesota taxpayers were paying much of the cost to educate Wisconsin residents. This situation inspired additional negotiations and, in 1976, the states were near agreement. Wisconsin requested 35 places in the entering class with a marginal cost method to determine the net educational costs. Wisconsin residents would pay resident tuition rates, and Wisconsin would participate in admission and curriculum policies. The agreement was contingent on appropriations from the Minnesota legislature to increase the college's facilities. Powerful legislators and interest groups, as well as many Minnesota veterinarians, were opposed to expanding the enrollment to accommodate Wisconsin residents. In 1977 and 1978, the legislature refused to appropriate the funds for more facilities. In 1978, the legislature instructed the college to present plans to accommodate only 80 Wisconsin students. In 1979, the University requested and received $12,500,000 from the legislature for additional facilities based on this reduced figure.
In the meantime, groups in Wisconsin promoted the creation of a veterinary college in Wisconsin. In 1976, the Wisconsin legislature passed a bill to establish a veterinary college in Wisconsin. The establishment of the college was delayed for a time to watch developments in Minnesota.
In 1975, a southwestern Minnesota legislator introduced a bill to move the College of Veterinary Medicine to Southwest University at Marshall. The Marshall campus was having trouble attracting students and, according to the legislator, the campus had $50,000,000 worth of unused buildings. He argued the move would bring more students to the campus and solve the facility needs of the College of Veterinary Medicine. Although the bill caused concern among the faculty, the legislation died in the legislature from lack of support.

DR. BENJAMIN S. POMEROY APPOINTED ACTING DEAN

Dr. Benjamin S. Pomeroy was appointed acting dean of the College of Veterinary Medicine effective January 1, 1979. Pomeroy graduated from Iowa State University College of Veterinary Medicine and obtained his M.S. from Cornell University and his Ph.D. in 1944 from the University of Minnesota. He was known and honored world-wide for his work on poultry diseases. He was also very active in professional organizations, including service as secretary-treasurer of the Minnesota Veterinary Medical Association from 1950 to 1975. Dr. Pomeroy was well-known in political circles and lobbied effectively for the College of Veterinary Medicine requests to the state legislature.
During his term as acting dean, Dr. Pomeroy improved college relations with veterinarians throughout Minnesota, the livestock and poultry industries, and the legislature. He played a vital role in obtaining $13.6 million provided by the 1979 state legislature to complete Phase II of the construction plan. Dr. Pomeroy served until December 31, 1980, when Dr. Dunlop was appointed dean.

DR. ROBERT DUNLOP APPOINTED DEAN

Dr. Dunlop became dean effective January 1, 1980. He was born in London, England, where he received his early education. In 1949, he came to Canada and in 1956 graduated from Ontario Veterinary College. He obtained his Ph.D. from the University of Minnesota in 1961. Dr. Dunlop then returned to England where he served as pathologist and directed the Wickham Laboratories. In 1962, he accepted a position at Cornell Veterinary College to teach pharmacology. In 1965, he became head of the Department of Physiological Sciences in the Western College of Veterinary Medicine at the University of Saskatoon, Canada. He went to Uganda, Africa, in 1971 to help the British and Canadian governments develop a veterinary school. The project was terminated prematurely due to political pressure in the country. He then went to Malaysia to assist that nation's college of veterinary medicine and to evaluate a cattle program. Late in 1973, he became dean of the Murdock Veterinary School in Western Australia.
Upon becoming dean, Dr. Dunlop found the College of Veterinary Medicine had changed in many ways during the 19 years since he had been a graduate student. Both the physical plant and the staff had greatly expanded. The staff

was less unified then when he had been a graduate student. Although Dean Ewing had eased tension between staff factions, there remained distrust and friction in the faculty ranks.
Members of the staff of the Diagnostic Laboratory had been greatly disturbed when their department was placed within another department. The head of the Diagnostic Department had resigned, and practitioners criticized the arrangement. Dr. Dunlop restored the laboratory to department status easing the concerns of laboratory staff.

THREAT OF CLOSURE OF THE COLLEGE OF VETERINARY MEDICINE

The vice president of the University, Kenneth Keller, developed the Commitment to Focus Plan to raise the standard of excellence in the University. The plan was subsequently approved by the Board of Regents. When he became president of the University in 1985, Dr. Keller brought in a new vice president of academic affairs to implement the plan. Each department of the college was asked to redirect fifteen percent of its funds from the maintenance and operations budget. Ten percent was to be channeled to high priority programs and five percent directed to programs on a non-continuing basis. This arrangement greatly disadvantaged professional schools like the College of Veterinary Medicine where it is necessary to cover many disciplines to provide the proper professional education.
The new vice president of academic affairs instituted a new system to measure the effectiveness of colleges and departments based on the number of credit hours taught by each staff member; the amount of research funding brought in by each staff member; and the number of Ph.D. candidates who were graduated per staff member. The College of Veterinary Medicine fared poorly in this type of evaluation. The criteria did not consider the large volume of service work expected of the staff and the relatively small number of students enrolled in the college. The college was advised to reduce its staff size and facilities to fit in the budget calculated by the evaluation system. A committee was appointed to recommend ways for the University to raise the standard of excellence. However, the committee's recommendations required substantial funding. As the legislature was not likely to appropriate more money, these funds had to be found within the University. The committee considered the closing of several colleges and elimination of certain departments. The committee recommended the closing of the College of Veterinary Medicine, Dental School, School of Public Health, and Department of Mortuary Science.
The recommendation to close the College of Veterinary Medicine alarmed veterinarians throughout the state. The Minnesota Veterinary Medical Association, livestock and poultry organizations, and owners of pet animals came to the support of the college. The reputation and standing of the college suffered nationally because of the wide publicity the recommendation was given in the media. However, the recommendations were eventually rejected by the Board of Regents.

Dean's Advisory Council Response to Closure of the Veterinary School

Following the announcement of the threat of closure announced by University President Keller in 1987, Dean Dunlop called for an emergency meeting of the College Advisory Council to develop a plan of action. The meeting was held in the 3rd floor conference room of Animal Science/Veterinary Medicine that spilled out into the hallway. Dr. Ed Foster, chair of the University Wide Commitment to Focus Committee appointed by President Keller was invited to the meeting.
The College Advisory Committee Chair, Dr. Peter Poss introduced Dr. Foster and asked him to explain the announcement and reasons for closing of the veterinary college. Following his explanation, Chairman Poss told him that closure of the College was unacceptable and asked who we need to meet with to have the plan reversed. Dr. Foster said that the president of the University, Dr. Keller would be making the final decision.
Dean Dunlop suggested a subcommittee be identified of external members to meet with President Keller. Dr. Poss recruited a representative subcommittee of eight members and after consulting with several University officials, secured an appointment with Dr. Keller. At the meeting Dr. Keller indicated we need to talk to the Governor of Minnesota since the underlying problem at the University is inadequate state funding. Dr. Keller formed his "Commitment to Focus Committee" resulting in a determination that some units will need to be shut down. He recommended our committee meet with Governor Rudy Perpich.

Dr. Poss and others were successful in arranging a meeting with Governor Rudy Perpich that was held on a Saturday morning with an invitation to breakfast at the Governor's mansion. Our livestock farmers and veterinary group was given time to relate the importance of livestock to Minnesota and the role of veterinary medicine. Dr. Perpich, a dentist did not get accepted to the University of Minnesota Dental School and received his degree in Wisconsin. However, he was gracious and impressed by our committee and the importance of the Veterinary College but could not promise to keep the College open.
Following the meeting with the governor, many committee meetings were held, and letters written to many officials in the University and the State Legislature that resulted in the closure plan being dropped.

DEAN DUNLOP RESIGNS

Dr. Dunlop announced his resignation on April 26, 1988, effective August 1, 1988. Although he had planned to resign earlier, Dr. Dunlop had delayed his plans to resign until the threat of closing the college had passed. After the Board of Regents rejected the recommendation, Dr. Dunlop decided the time had come for him to return to teaching and research.

PROFESSIONAL CURRICULUM 1988-90

The first three years of the professional curriculum consisted of 59 required courses totaling 193 credits. The fourth-year clinical teaching program consisted of 36 weeks of core clinical rotations and 14 weeks of elective rotations. There were 18 required core rotations consisting of 68 course credits. The elective core rotations were ten in number and involved 40 teaching credits. A sizeable percentage of these rotations were conducted in the Veterinary Teaching Hospital but included some off-campus programs. Most of the small animal program was accommodated at Lewis Hospital for Companion Animals.
The Veterinary Teaching Hospital included the Lewis Hospital for Companion Animals and the Large Animal Hospital.

DR. DAVID THAWLEY APPOINTED INTERIM DEAN

Dr. David G. Thawley was appointed interim dean of the College of Veterinary Medicine effective August 1, 1988. In 1990, he became the dean of the college. Thawley received his D.V.M. from the Massey University Palmerston North, New Zealand in 1969. In 1974, he received his Ph.D. from his University of Guelph, in Guelph, Ontario, Canada. He came to the University of Minnesota in 1986 from the College of Veterinary Medicine at the University of Missouri, where he had been professor of veterinary microbiology, director of research, and assistant director of the Missouri Agricultural Experiment Station. Prior to his appointment, he was Chair of the Department of Large Animal Clinical Sciences at Minnesota's College of Veterinary Medicine.
Upon his appointment Dr. Thawley undertook an extensive long-range strategic planning program for the college. The college participated in the Pew National Veterinary Educational Program to develop a plan to meet the challenges for veterinary medicine in the 1990s. The college developed a five-year strategic plan that included extensive changes to the curriculum.
Additionally, the Department of Animal Science has become affiliated with the College of Veterinary Medicine. Staff members had been working together on an individual basis. However, this affiliation allows staff members in animal science and veterinary medicine to coordinate much more extensive teaching, research, and extension programs.

PROFESSIONAL CURRICULUM 1991-92

The elective core rotations were ten in number and involved 40 teaching credits. A sizeable percentage of these rotations were conducted in the Veterinary Teaching Hospital. These included some off-Campus programs which were the Cannon Falls Field Station, Field Services Program, Theriogenology Program, Externship Program and

Clinical Professorship Program. Most of the small animal program was accommodated in the Lewis Hospital for Companion Animals.

CVM STRATEGIC PLAN 1996-97

The college completed its strategic plan in May of 1997. The plan presented a clear vision of the direction the College of Veterinary Medicine intended to pursue in future years. The CVM would be an international leader in focused areas of veterinary education, research and service. The College would maintain its leadership role at the forefront of food animal production and companion animal health care. The college would remain a leader in curricular innovations the permitted students to emphasize different career options. The college would also provide veterinarians with advanced continuing educational opportunities using innovative instruction methods. The Veterinary Teaching Hospital and the Veterinary Diagnostics Laboratory would be strengthened as major suppliers of specialized veterinary and diagnostic services.

The Mission of the College of Veterinary Medicine was:

- Educate students to become veterinarians
- Advance the practice of veterinary medicine
- Contribute to animal health and performance
- Enhance human well-being through teaching research, outreach and clinical service

CURRICULUM REVISION 1997-98

The faculty approved implementation of the first year of the new curriculum in fall 1997, with first revision and approved of years two and three to occur in 1997-98. The new curriculum emphasized efficient use of student contact time, opportunities for early professional experience and increased emphasis on development of professional skills such as communication, conflict management and ethics. Structurally, the new curriculum facilitates these goals by limiting whole class contact hours (goal of a maximum average of 25 hours per week) to allow an increase in structured small group or individual study and field experience. Clinical rotation opportunities were moved into the end of the third year of the program.
In association with plans for enhanced use of interactive teaching methodology and computer technology in teaching, this CVM initiated several major developments. A major revision of one large classroom was funded by the Academic Health Center and construction initiated at the end of the 1996-97 year. The room was modified to incorporate computer-based instruction and provided access points at each student seat for laptop computers. The college-initiated purchase of an education server to contain and deliver all teaching materials in an internet fashion and began the process of faculty training for material conversion and use of the server.
Clinical instruction continued to begin at the end of the third-year curriculum in predominately 2-week blocks for a total of 28-32 rotations. Students were required to select one of nine track options prior to their senior year. Three of these tracks are single species focus:

- small animal
- equine
- food animal

Four are combinations of species:

- small animal/equine
- small animal/food animal
- equine/food animal
- small animal/equine/food animal

In the eighth track, students in a food animal track can choose one of five areas of emphasis:

- beef
- dairy

- bovine general
- swine
- small ruminant

The ninth track, referred to as "other", provides an option for students to design a unique track with appropriate faculty guidance and Curriculum Committee approval. All Students were required to take necropsy and public health rotations. Most of the rotations are conducted in the Veterinary Medical Center, although most of the Large Animal Rotations as well as Public Health and Community Practice, include off-campus visits.

DEAN DAVID THAWLEY RETIRES

Dr. David Thawley announced his resignation as dean in 1998 and on September 14, 1998, was named dean of the University of Nevada, Reno's College of Agriculture.
During Dr. Thawley's 12-year tenure at Minnesota since 1988, the College of Veterinary Medicine became a primary focus of university activities in molecular biology. He directed a $13 million initiative to strengthen campus-wide programs in molecular biology. Their Food Animal Biotechnology Center is recognized worldwide. Dr. Thawley credits the college's faculty. "I am looking forward to settling in Nevada where I can see the snow-capped mountains just to the west" Thawley said. "After 25 years away from my native New Zealand, it will be a little like returning.

DR. JEFFREY KLAUSNER APPOINTED INTERIM DEAN IN 1998 AND DEAN IN 2000

Dean Jeffrey Klausner

Dr. Jeffrey S. Klausner became Interim Dean of the College of Veterinary Medicine in 1998. He earned a BS at the University of Maryland College Park in 1964 and graduated from the University of Georgia, College of Veterinary Medicine in 1968. In 1977, he received an M.S. from the University of Minnesota and became a diplomat of the American College of Internal Medicine. He served for more than twenty years in college administration, becoming small animal clinical sciences assistant professor in 1979 and department chair in 1997. Dr. Klausner was appointed Dean of the College of Veterinary Medicine in 2000.
The Veterinary Public Health program has been a resounding success. This program leads to a D.V.M. degree and a master's degree in Public Health in four years, providing the credentials to address key issues related to food safety, emerging infectious disease, and public health.

PROFESSIONAL EDUCATION PROGRAM 1998-1999

A major curriculum revision was initiated with the first-year class in the fall of 1999. It included conversion to a semester format with variable course lengths to fit, major changes in content organization, and the addition of an integrated course to improve coordination of materials and provide a forum for instruction. The most significant content change involved moving introductory immunology from the second year into the spring infectious disease course, and moving antimicrobial pharmacology from the same course into infectious agents II in the fall semester of the second year. A laptop program was also initiated in the fall of 1998 for the first year class. Nine of the 19 courses offered in the first year curriculum provided resources online or on CD-ROM as supplements.
A revised second year curriculum was implemented for the first time during the 1998-99 academic year. Its design continued the direction set in the revised first year curriculum, including an increased emphasis on concepts and principles, greater use of active learning opportunities, better coordination of content, earlier introduction to

clinical practice, and greater emphasis on professional skills such as communication, ethics, information and practice management.

PROFESSIONAL EDUCATION PROGRAM 1999-2000

Another major curriculum change was initiated with the first class in fall 1997. In the 1999-2000 academic year, the first-year curriculum was offered for the third time, the second-year curriculum was offered for the second time and a revised third year curriculum was offered for the first time. The third-year curriculum included a 10-week sequence of advanced track courses in the second semester and an additional 3-6 clinical rotation opportunity. The fourth-year curriculum remained unchanged with 2-weeks increments for a total for 28-32 rotations.

PROFESSIONAL EDUCATION PROGRAM 2000-01

The Field Services Program was replaced by clinical rotations in the private sector to teach applied clinical practices. The clinical teaching program in food animals and one equine clinical rotation utilize private heads and field trips to carry out the teaching program.
In the Dairy Cattle Program the following rotations utilize private heads.

- Advanced Building Design
- Dairy, Applied Nutrition
- Ruminant Nutrition
- Dairy Records
- Dairy Mastitis, Milking Machines And Milk Quality
- Dairy Theriogenology Management
- Dairy Theriogenology Palpation
- Dairy Production Medicine Young Stock

Poultry Health Rotation

Eight trips were conducted to large flocks, broiler operations, and a hatchery and broiler processing plant. These trips involve consultation regarding disease treatment and protection, inspection and food safety, and performance analysis.

Swine Rotations

- Swine Economics, economic Management and Marketing: two field trips
- Swine Production Systems: four field trips
- Epidemiology and Biostatistics: two field trips

Small Ruminant Health and Production

In this rotation, a total of 48 field trips were made to sheep flocks, goat herds, deer and elk herds and llama and alpaca herds. These trips include providing veterinary service, health programs, nutrition counseling, disease diagnosis, and production management.

STRUCTURED INTERVIEWS CHANGE ADMISSION PROCESS 2004

The College has been recognized and valued as an important state and national resource by university leadership. Minnesota was the first veterinary college to adopt the PDI (Personal Decision International) behavior-based interview as part of the selection process in changing how veterinary students are selected.

Prior to 2004, admissions at CVM were primarily based on prior academic success, and the graduate record exam. These academic or technical skills scored 70%. Non-academic areas such as knowledge of the profession, maturity and reliability from letters of reference and personal statements from the applicant scored 30%. Although 85% of other veterinary colleges had continued to use some sort of interview process, unstructured interviews at the CVM were discontinued after 1974. The interviews were determined to be unreliable because lack of any guidance to faculty interviewers in questions asked or criteria for consistent evaluation.

Around 2000 major studies (Brakke & KMPG)[8] [9] commissioned by the AVMA noted a "potential mismatches between the skills of veterinarians and those required for career mobility and economic success". Based on these previous studies a consortium of veterinary college selected successful veterinarians with the help of an organizational development consulting firm.[10] Success in veterinary medicine previously was determined by demonstrating previous academic and non-academic accomplishments. The study demonstrated that behavioral skills or personality traits are also a component of success.

Definition of a successful veterinary career:

1. Gaining personal fulfillment by enjoying the work, taking pride in the profession and oneself, and having fun
2. Helping others by contributing to the welfare of others and the profession, being of service to others, and helping the careers of others
3. Achieving a balanced set of goals by meeting family, spiritual, community, and professional obligations; satisfying multiple needs; and balancing relationships at work, in the community, and in the home
4. Gaining the respect of others by participating in a profession that is respected by clients and peers and achieving professional recognition
5. Pursuing and meeting goals important to one's self to facilitate growth
6. Earning a level of compensation that meets life needs and permits one to sustain growth in the profession

The consulting firm defined the behavioral skills to meet these career goals:

1. Build interpersonal relationships by seeking input and valuing perspectives
2. Self management acting with confidence & integrity, maintain skills and knowledge of veterinary medicine, write and speak effectively to a given audience
3. Leadership by ability to motivate, persuade others and guide higher performance
4. Business orientated through satisfying clients or stakeholders, building processes for success, understanding financial concepts for success
5. Sound judgement by thinking with innovation of new ideas when based on sound logic and professional experience

Restarting applicant interviews[11] required the consent of the Admission Committee and faculty. A detailed discussion ensued. The Admissions Committee commissioned a 2002 pilot study with a supplemental application requiring responses demonstrating the behavioral skills noted above. The subcommittee formed and included veterinarians outside the CVM, and subsequently recommended adopting the interview guide to structured interviews for admission to the CVM program. The CVM use of structured interviews in the admissions process has continued since the 2004 application cycle with documented support of both interviewer, student applicants both

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[8] Brown JP, Silverman JD. The current and future market for veterinarians and veterinary medical services in the United States. *J Am Vet Med Assoc* 215:161-183, 1999.

[9] Cron WL, Slocum JV, Goodnight DB, Volk JO. Executive summary of the Brakke Management and Behavior Study. *J Am Vet Med Assoc* 217:332-338, 2000.

[10] Lewis RE, Klausner JS. Nontechnical competencies underlying career success as a veterinarian. *J Am Vet Med Assoc* 222:1690-1696, 2003.

[11] *Molgaard, LK, Lewis RE. The Use of a Structured Interview Guide in Veterinary College Admissions. J Am Vet Med Assoc Vol. 35, No. 3, 460-465, 2008.*

accepted and rejected.

FACULTY 2004-05

The college employed 131 faculty in 2005. Many received awards. Dr. Dave Halvorson, professor and extension veterinarian, received the Bruce W. Calnek Applied Poultry Research Achievement Award; Dr. James Collins, director of the Veterinary Diagnostic Laboratory, received the Veterinarian of the year award from the Minnesota Veterinary Medical Association. Dr. Will Hueston, director of the Center for Animal Health and Food Safety, was presented with the Karl F. Meyer-James H. Steele Gold Headed Cane Award at the American Veterinary Medical Association convention in Minneapolis, in July 2005. Dr. Carl Osborne received an award for outstanding achievement in veterinary medical ethics at the AVMA convention in Minneapolis, and received an award for outstanding contributions to education at the University of Minnesota's distinguished teaching awards ceremony in April 2005. Dr. John Fetrow, professor in the Veterinary Population Medicine Department, received the Alpharma Award of Excellence from the American Association of Bovine Practitioners. Dr. Cindy Wolf, Assistant Clinical Professor in the Veterinary Medicine Population Department received the 2005 Don Bailey Practitioner of the Year Award from the American Association of Small Ruminant Practitioners.

Sixty-four faculty participated with the Minnesota Extension Service, and faculty participated in more than four hundred state, national and international continuing education programs.
Nearly four hundred refereed journal articles were published by the faculty:

- Veterinary and Biomedical Sciences: 195
- Veterinary Clinical Sciences: 74
- Veterinary Population Medicine: 129

GRADUATE PROGRAM 2005-06

During the 2005-06 academic year, more than 100 students were enrolled in the graduate program. Of these, 47% were from the United States and 53% were from foreign countries. A total of 23 received advanced degrees, which included ten master's degrees and thirteen Ph.D. degrees. Four individuals received the D.V.M./M.P.H degree, and one received a D.V.M./Ph.D. degree.

VETERINARY MEDICAL CENTER 2006

The Veterinary Medical Center developed into one of the largest veterinary hospitals in the country. In 2006 the small animal hospital had 43,771 admissions with 8,914 hospitalizations and 34,857 outpatients. The large animal hospital had 1,900 admissions with 778 hospitalizations and 1,122 outpatients. It also provided zoo animal services, with 165 calls and 536 animals treated, and it provided specialty training with nine interns and seven residents.

BEN POMEROY STUDENT-ALUMNI CENTER

In 2007 the college opened the Ben Pomeroy Student-Alumni Learning Center, a gathering place for faculty, staff, and students. The opening of the Equine Center significantly improved the ability to care for horses and to support teaching and research. Another important accomplishment was an increase in funding for the Veterinary Diagnostic laboratory.

VETERINARY OUTREACH PROGRAM 2006-2007

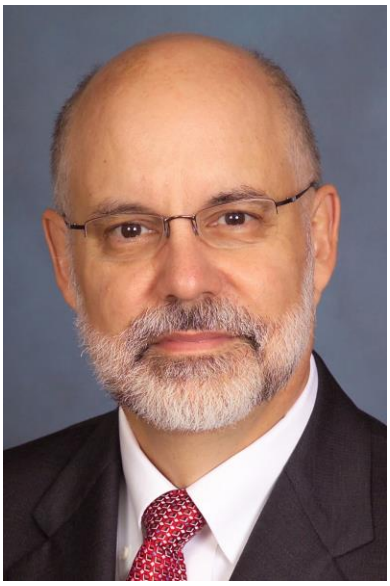
The college's veterinary continuing education programs provided learning opportunities for veterinarians, veterinary technicians, agricultural industry representatives, food animal producers and pet owners. Continuing education programs offered 33 conferences to a total of 2,172 veterinarians in the following areas: avian, equine, dairy, swine, and molecular biotechnology and companion animals. In addition, faculty participated in many national and international conferences.

DEAN JEFFREY KLAUSNER RESIGNS

Dr. Jeffrey S. Klausner announced that on July 1, 2007, he would resign as dean to accept the position as President and Chief Executive Officer with The Animal Medical Center in New York City. He leaves with significant leadership achievements for the college.

DR. TREVOR AMES APPOINTED INTERIM DEAN IN 2007

After completing an internship and residency at the CVM, Dr. Trevor R. Ames joined the faculty in 1981. He received his D.V.M. in 1978 from the Western College of Veterinary Medicine at the University of Saskatchewan and his Master of Science degree in 1981 from the University of Minnesota. Dr. Ames is a diplomat of the American College of Veterinary Internal Medicine. His research interests include infectious diseases of horses and cattle. He served a clinical internship and residency at the University of Minnesota in 1979-1981, and received his M.S. degree from the University of Minnesota in 1981. Dr. Ames served as chair of the Department of Clinical and Population Sciences from 1997 to 2007. His teaching responsibilities included lectures in virology and large animal medicine.



Dean Ames

Dr. Ames was appointed interim dean in July 2007. For ten years prior to this position he served as the chair of the Veterinary Population Medicine Department, acting chair of the Veterinary Clinical Sciences Department, and chair of the Veterinary Medical Center Leadership Team. As Dean, he has promoted the One-Health-Initiative through the three research signature programs of the college: comparative medicine, zoonotic and emerging diseases, and population systems.

Dr. Ames is active in organized veterinary medicine having been a member of the American Veterinary Medical Association, the American Association of Bovine Practitioners, the American Association of Equine Practitioners and the American College of Veterinary Internal Medicine for over 35 years. He is a board member of the Animal Humane Society, American Veterinary Medical Association Council on Education and the Wildlife Rehabilitation Clinic and attends Board of Directors meetings of the Minnesota Board of Animal Health and Minnesota Veterinary Medical Association as the collegiate representative. Dr. Ames also served on the board of Directors of the Association of American Veterinary Medical Colleges for six years, including a term as president.

PROFESSIONAL EDUCATION PROGRAM 2008-09

The College launched an initiative to stem a decline of veterinarians working in agriculture in Minnesota. The number of veterinary students pursuing food animal medicine had fallen by 50 percent over the past 20 years. To help correct this problem, the Minnesota legislature provided $225,000 in veterinary loan forgiveness funding for graduates who agreed to practice in underserved areas of Minnesota.

The American Veterinary Medical Association Council on Education voted to continue full accreditation for the college in 2009. The Council commended the college for completing several improvements to its physical facilities, and the purchase of an equine ambulatory practice to increase the number of equine cases.

PROFESSIONAL EDUCATION PROGRAM 2011-2015

The College of Veterinary Medicine veterinary students were involved in the highly pathogenic avian influenza outbreak that affected more than a hundred Minnesota farms and 10,000,000 birds. Students from the college supported the work of the USDA, the Minnesota Board of Animal Health, and the Minnesota Department of Natural Resources through volunteer work at the incident command center, and through poultry and wildlife surveillance efforts.

U OF M PRESIDENT REACTS TO GOVERNOR SIGNING 2015 BONDING BILL

Minnesota Governor Mark Dayton signed a bonding bill during Dr. Ames Deanship and the largest loss of poultry in Minnesota and the United States due to a highly pathogenic Avian Influenza outbreak in 2015. The bill passed by the Minnesota Legislature in early October that provides $26.5 million in capital funding to the University of Minnesota, including $18 million for new bio-containment facilities to replace the Isolation units on the St. Paul campus of the College of Veterinary Medicine and provides $8.5 million in expansion and upgrades for the Minnesota Poultry Testing Laboratory in Willmar, Minnesota that is a branch laboratory of the College of Veterinary Medicine's Veterinary Diagnostic Laboratory on the St. Paul Campus.
In response, U of M President Eric W. Kaler issued the following statement:

> *I appreciate the generous support from our legislators and the governor for including" the University of Minnesota in the 2015 bonding bill. The $26.5 million capital investment in two of our veterinary research facilities will have an impact across Greater Minnesota and beyond, keeping with the U's tradition of being a statewide university with worldwide implications. The $18 million investment in our St. Paul .campus will replace two obsolete labs with a state-of-the-art bio-containment facility ,The lab will allow us to keep the U of M at the forefront of infectious disease research attract and retain renowned faculty, create new diagnostic tests and surveillance systems, and develop new vaccines and treatments. It will also allow experts to go beyond testing for highly pathogenic viruses – to research viruses and how it's being ."transmitted between animals and between farms*
> *The $8.5 million invested in Willmar's vet diagnostic lab will allow is to test an additional 200 animals per day. When time-sensitive testing is required, such as during the recent avian flu outbreak, we will be able to provide additional resources ".closer to the source*

Trevor Ames, dean of the College of Veterinary Medicine, added:

> *These facilities, when completed, will provide laboratories and animal housing in a" ,secure and isolated environment where emerging diseases such as avian influenza foot and mouth disease and porcine epidemic diarrhea virus can be investigated safely. This will enhance diagnosis, testing, methods to reduce and prevent transmission, and development of vaccines to prevent disease. In a world where new diseases can be introduced that can devastate livestock and wildlife populations and*

,where 75 percent of emerging diseases are shared between animals and humans
".this facility could not be more crucial for Minnesota's health

Since 1990, there have been at least six major new disease introductions into Minnesota's livestock and poultry populations that have created significant hardship and economic loss, and the University of Minnesota has been there to respond. The livestock industry has approximately $27 billion in direct and indirect contributions to Minnesota's economy.

PROFESSIONAL EDUCATION PROGRAM 2018

A 2018 American Association of Veterinary Medical Colleges Award recognized co-chair De. Laura Molgaard and collaborators for an innovative broad framework for competency-based veterinary education (CBVE). It provides a resources for faculty development to review curriculum and in assessing students. The well-being and development of each student is accomplished through specific steps towards eventual competency instead of focusing on setbacks. The working group included representatives from Royal Veterinary College, Utrecht University and 9 American veterinary colleges.

DEBILITATING DEBT AND A MENTAL ILLNESS EPIDEMIC

In 2018, the average Minnesota veterinary student's debt totaled $214,562, with an average starting income of $83,230. But 40% of students pursued advanced training, including internships, residencies, and PhD programs, which have stipends that lower the average starting income of CVM graduates to $58,450.
CDC: 37% of US teens had poor mental health in pandemic.

DR. TREVOR AMES RETIRES AUGUST 2019

Dr. Ames continued his 41 year career with the University of Minnesota by moving into the role of associate vice president of Academic Health Sciences in August 2019. During his 12 year tenure as dean, the number of faculty increased by 30 percent supporting a dramatic increase in CVM revenue of 50 percent. Responding to national alarm about student indebtedness, he held tuition increases to less that 1 percent yearly between 2012-2018.

DEAN LAURA MOLGAARD TENURE STARTS

Dr. Molgaard is a 1991 graduate of the Iowa State College of Veterinary Medicine. She joined the Minnesota CVM in 1997 after veterinary technicians several years after starting out private practice as a small animal veterinarian. She taught veterinary students and improved the curriculum for 5 years before being named Associate Dean for Academic and Student Affairs in 2001. She served as interim dean from August 2019 to
During her early days at the CVM, she was tapped for special projects. Molgaard is a non-traditional administrator including that she never pursued a PhD. Being a clinical expert would never has helped her goal of solving broad problems. For example, her research interest focuses on improving student career success through quality coaching feedback and competency assessment. She continues to teach a course on leadership within the University of Minnesota veterinary program, and professional development for future veterinarians.
Molgaard was an early innovator of technology creating a hybrid course in 1999 and a comprehensive, interactive tutorial on physical examination of the canine patient in 2001. She created and implemented an Objective Structured Clinical Examinations (OSCEs) for students to improve their communication skills by practicing the art of collecting a medical history. The OSCE program started in 2002 and has been continued by more recent course coordinators.
The University of Minnesota presented Molgaard with an Access Achievement Award in 2012 for her efforts to advance access on campus and foster an inclusive environment for students with disabilities.

Focus on Diversity, Equity and Inclusion Begins

The killing of George Floyd by a group of Minneapolis policeman caused an international calamity. In summer of 2020 amid the pandemic, interim dean Molgaard responded to the killing in an open letter that "To merely denounce his killing and the historic injustice and inequity is inadequate. I have had the opportunity to listen to voices of Black colleagues that are speaking their needs and asking all of us to act with persistence rather than urgency."

The 10-year commitment to VETgirl Diversity, Equity, and Inclusion (DEI) Scholarship at CVM started in the spring of 2021. VETgirl was founded by Justine Lee, DVM, DACVECC, DABT, a former CVM faculty member.

Elizabeth Martinez-Podolsky served as its first director of diversity, equity, and inclusion (DEI), joining the CVM in May 2021. Creating a campus where everyone is welcomed, valued and included will enhance the ability of graduates to connect with colleagues, clients and their communities throughout their careers.

A broad range of initiatives were started including HR anti-bias training, pipeline connections historically black colleges and universities (HBCUs) , tribal state relations training, DEI inclusion in curriculum, and inclusive messaging on the CVM websites.

The MVMA DEI Action team was also started in 2021. The first highlight of this very engaged group is partnering with Mission Animal Hospital and Cristo Rey Jesuit High School Twin Cities in a work study program. Students attend school 4 days each week and then one weekday spent as part of the clinic staff.

Pandemic And a Mental Illness Epidemic

In the fall of 2020, faculty prioritized flexibility by offering learning experiences in various formats to help protect the safety and health of all students, faculty, and staff. Some classes are online, some are in person, and some are a blend. Masks and social distancing were required. All university buildings were locked down requiring personal ID/keycards for entry.

Emeritus Luncheon
Standing (l to r) Francis Spurrell, Ben Pomeroy, Wendell J. Deboer, James O. Hanson, Al Weber, Jay Sautter, Ray Solac, Dale Sorensen
Sitting (l to r): Bee Hanlon, John Arnold, Glen Nelson, Dean David Thawley

Chapter 3
Research Program

When faculty were transferred from the Division of Veterinary Medicine into the new school in 1947 they brought with them their research projects.

Dr. Martin Roepke was conducting research on brucellosis, commonly known as Bangs Disease. He developed and refined the milk ring diagnostic test for brucellosis in cattle. Dr. Ben Pomeroy conducted research on diseases of turkeys, particularly fowl typhoid. Another significant research project at the time was a new disease of cattle that required investigation. Faculty of the school headed by Dr. William Pritchard determined that this disease was trichloroethylene extracted soybean oil meal toxicity disease. The feed manufacturers were notified of this problem in cattle and quickly changed their extraction process.

Veterinary pathologist Dr. William J. Hadlow conducted experiments that linked neurological disorders in animals and people. These findings laid the groundwork for uncovering the cause of diseases collectively known as transmissible spongiform encephalopathies. In the mid-50s one of the hospital cases was a cow that was diagnosed with congenital porphyria by Dr. Harvey Hoyt. At the time, Dr. Sam Schwartz in the medical school was conducting research on human porphyria. Cattle were the only animals known to develop porphyria, which is an ultraviolet sensitive disease. Some of the cows in the cattle herd were purchased and housed at the Rosemount Research Farm. Dr. Sam Schwartz, Dr. Dale Sorensen and Dr. Harvey Hoyt obtained funds to develop a research project which continued for several years. Much was learned of the mechanism and pathogenesis of this congenital disease by studying affected cattle.

Dean Thorp worked to increase the number of research grants and sources of funding for the college. His contacts at the National Institute of Health and other federal agencies were valuable in increasing research funding. The first new research projects in the college included a grant from the U.S. Air Force to study the regulation of temperature control and a commercial grant to study trichlorelylene extracted soybean oil meal toxicity in cattle.

The first major research project obtained by the college from a government agency was a grant to Dr. Frances A. Spurrell from the Wright Air Development Center at Wright Patterson Air Force Base in Ohio, to determine the effects of irradiation in large animals. Burros were used in the project, which spanned from July 1, 1958 to January 1962. Later Dr. Spurrell obtained a large grant to study hip dysplasia in dogs. Research funds were also obtained from the Agriculture Experimental Station on an annual basis. These research funds were primarily used to support research on diseases of turkeys, swine and cattle.

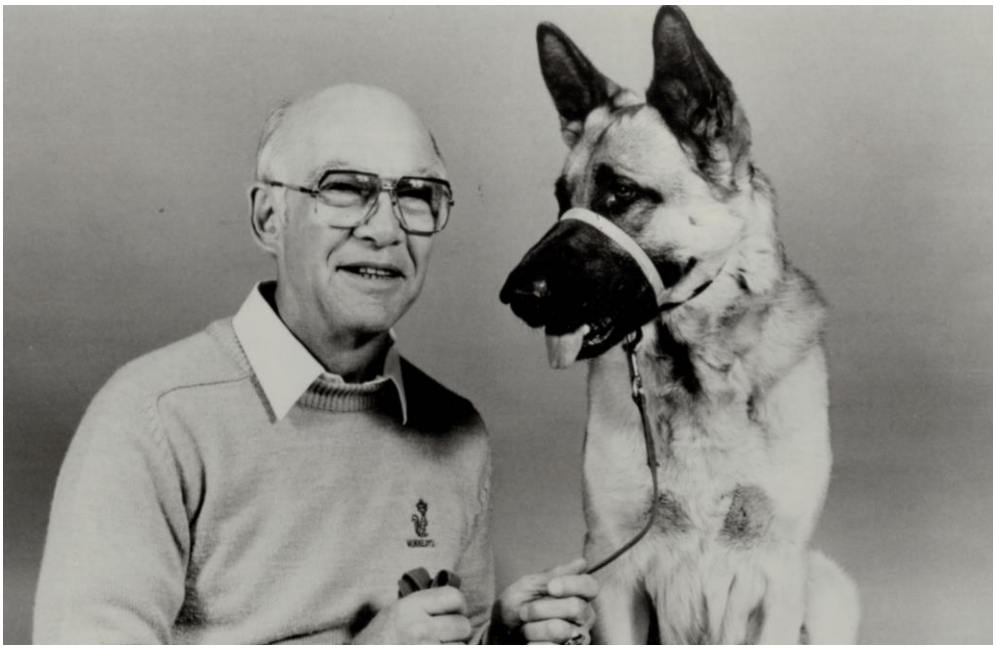
Another initiative developed by Dr. Thorp was a program with the Medical Department at Brookhaven National Laboratory in New York. The college would provide a faculty member each year to supervise the research animal facility at Brookhaven and conduct research; Brookhaven provided the research funds. Many faculty members participated, including Drs. Arnold Willian, Dale Sorensen, Vic Perman, Edward Usenik, Harley Moon, Vaughn Larson, Darrel Joel and others.

Dr. Sorensen, in cooperation with Drs. E.P. Cronkite, Victor Bond and Vic Perman developed a therapeutic regime for the hemopoietic phase of acute radiation syndrome in dogs. This research resulted from concern that the country might become involved in a nuclear war with the Soviet Union when no research had been done on the treatment of irradiation syndrome. This was the first study in animals.

LARGE ANIMAL RESEARCH PROJECTS INTO THE NINETEEN EIGHTIES

Another project on Bovine Leukemia was funded by the Atomic Energy Commission with an initial budget of $300,000. The principal investigators for this project included Drs. Dale Sorensen, Robert Anderson, Vic Perman and Alvin Weber. The disease was studied extensively. One of the highlights of the study was the isolation of c-type virus particles from cattle with lymphocytic leukemia.

In the 1960s and early 1970s Dr. Stanley Diesch conducted research for the U.S. Environmental Protection Agency in conjunction with the University's Agricultural Engineering Department on the survival of leptospirosis and salmonellosis in the environment. Researchers determined the survival time of the organisms in manure and studied how it affected humans at work.



Dr. Robert K. Anderson

During the early 1970s the Minnesota Disease Reporting System was developed and validated by Drs. Stanley Diesch, Donald Johnson, Frank Martin and L. Christenson. The system became the prototype for the National Disease Reporting System of the U.S. Department of Agriculture.

In the 1970s research increased. An interesting research program was requested by the Minnesota Environmental Quality Board and funded by a grant from the Co-operation Power Association. Minnesota had approved a direct current, high voltage powerline extension through a large area in Minnesota. There was public concern over potential adverse effects to nearby residents, and many farmers believed that the power line would produce a decrease in milk production and other health problems for their cattle. This project involved faculty from other departments of the University; Frank Martin from the Department of Applied Statistics lead the project, with assistance from Gerald Steuernagel from the Department of Animal Science and Allan Williams from the Minnesota Department of Health. Faculty from the College of Veterinary Medicine (CVM) included Drs. Alan Bender, Ashley Robinson, Norm Williamson, Rodney Revsbech, and Dale Sorensen.

The project continued for several years, and finally concluded that no adverse effects in the cow herds that could be attributed to the operation of the powerline. These findings were considered relevant to human health risks generally related to high voltage lines.

In the 1980s Dr. Robert K. Anderson, professor and director of CEN-SHARE, invented the Gentle Leader head collar for dogs with trainer Ruth Foster. The head collar revolutionized the management pets in a humane, yet effective, way. This device was featured in the Smithsonian Institution as one of the best inventions of the twenty-first century.

A computerized health and management program for swine called PigChamp was developed in the 1980s by a faculty research team composed of Roger Morris, Tom Stein, Norm Williamson, Larry Baumann and Will Marsh. The system records individual histories of pigs in a herd, including information on farrowing, weaning, breeding, movement and sales. One of the purposes of PigChamp was to create a research database to identify constraints on production, to determine associations between health and productivity, and to provide information against which to test hypotheses. PigChamp is now widely used as a management program for swine production in the U.S. and many foreign countries.

A new worldwide disease in swine called porcine respiratory and reproductive syndrome (PRRS) emerged in the 1980s, costing the U.S. swine industry an estimated $560 million per year. Dr. Jim Collins, director of the Veterinary Diagnostic Laboratory and his research team received a grant to study this disease. In the early 1990s Collins and colleagues isolated the virus that caused this disease and developed a diagnostic test for it; the Diagnostic Laboratory became the first in the nation to provide high-volume same-day testing. Collins and his team also

developed a vaccine that contributed tremendously to PRRS control. The vaccine reportedly became the largest selling veterinary vaccine in the world.

RESEARCH FUNDING INCREASES DRAMATICALLY BETWEEN 1980-2000

In 1981, Dr. Carl Osborne established the Minnesota Urolith Center to investigate the causes, cures and prevention of urolithiasis, which was supported in part from a gift from Hills Pet Nutrition. The center analyzed 85,000 stone submissions[12] in 2021 from veterinarians in numerous countries around the world. Dr. Osborn also developed a diet manufactured by Hills Pet Nutrition that dissolved urinary stones in cats and dogs, decreasing the need for surgery and preventing deaths. Dr. Osborne's revolutionary work in the dissolution of uroliths in dogs, cats and humans began with funding provided by the Paralyzed Veterans of America. Paralyzed veterans were using indwelling catheters and they developed urinary tract infections that led to the formation of struvite stones. Osborne developed the model in dogs.

In 1985, Dr. Pat Redig of the Raptor Center developed a diagnostic test for aspergillosis, the most common fatal disease in birds of prey, which then was adopted by the poultry industry for use with large flocks of confined birds.

The College initiated a research team to study pseudorabies in swine. Pseudorabies was first reported in Minnesota in 1975. It causes death in newborn pigs and nervous system damage, abortive births and pneumonia in adult swine. Minnesota had the second highest incidence of pseudorabies among the 24 states where it was reported. As of June 1989, the disease had forced state officials to quarantine 508 of the state's 1,500 swine herds. For this project Dr. Thomas Molitor headed a research group including Drs. David Thawley and Dr. Michael Murtaugh.

The college established a motion analysis laboratory to evaluate equine injuries and performance. The laboratory combined the technologies of high-speed video tape and computerized image analysis. It was hoped that this motion analysis would be helpful in the early detection of race horse lameness.

The avian health, swine health, epidemiology, and herd health programs were cited as national leaders in their fields after an evaluation sponsored by the Cooperative State Research Service, The Minnesota Extension Service and the University's graduate school.

The funding for research has continued to increase. Significantly some 24% ($4.7 million) of the college's total expenditures were devoted to research in 1988-89. The following table provides a summary of research expenditures.

FY	Level of Support	FY	Level of Support	FY	Level of Support
1984-85	$2,427211	1990-91	$5,803,105	1996-97	$10,577,153
1985-86	$3,278,285	1991-92	$6,993,136	1997-98	$10,971,932
1986-87	$3,778,083	1992-93	$7,593,603	1998-99	$12,278,794
1987-88	$4,513,748	1993-94	$8,590,463	1999-2000	$12,828,214
1988-89	$4,721,072	1994-95	$9,855,202		
1989-90	$5,362,633	1995-96	$11,141,664		

The number of research publications by faculty is one measurement of the research productivity. Following is a summary for 1991:

[12] *https://vetmed.umn.edu/news/minnesota-urolith-center-sample-submissions-remain-strong-and-steady-2021*

Refereed Publications	211
Non-Refereed Publications	144
Chapters/Books	44
Lay Publications	64

Some notable research funding in the 90s included the following research contributions: a $180,000 grant from the National Institutes of Health awarded to Dr. Ken Johnson and Dr. Dave Hayden to study diabetes mellitus in adult cats. Diabetes mellitus in cats closely resembles type 2 non-insulin dependent diabetes mellitus in humans. A significant finding was the discovery and isolation of a protein from the islets of the pancreas. Named islet amyloid polypeptide (IAPP), it was found to be secreted with insulin from the pancreas. It also played a role in glucose absorption by cells. Dr. Johnson collaborated with Dr. Per Westermark, a pathologist at the University Hospital in Linkoping, Sweden. They determined that IAPP had virtually the same chemical composition in cats and humans. Patents were awarded to Westermark and Johnson in 1992 for "Preparations of Islet Amyloid Polypeptide (IAPP) and Antibodies to IAPP" and in 1995 for a "Kit for Detection of Islet Amyloid Polypeptide." Both were assigned to the University of Minnesota and licensed to Amylin Pharmaceuticals, which developed an analog of IAPP, pramlintide, that is marketed as Symlin. It is still used in some forms of diabetes therapy in cats and humans.

raptorIn 1992 Dr. Stephanie Valberg discovered polysaccharide storage myopathy, a muscle disease in horses. Her cure – a combination of diet and exercise routines – benefited thousands of horses.

CVM ESTABLISHES RESEARCH CENTERS IN 2000

Dr. Ken Johnson

In the 2000s the college research programs were reorganized for leadership in several areas. These included genomics, food animal production medicine and comparative medicine. The Veterinary Teaching Hospital began using its patient
base for companion animal preventative medicine research. It had links with other colleges in the Academic Health Center, particularly in areas related to research in the basic biomedical sciences. Fundamental research was focused in food animal biotechnology while more applied research was concentrated in the avian, swine, dairy, and companion animal programs.
The college primarily provided animal health and productivity research through its centers. New centers established in 2000 were the Center for Animal Health and Food Safety, the Swine Diseases Eradication Center, and the Center for Dairy Health Management and Food Quality. Following is a 2016 list of the centers in the college and their current focus.

SWINE CENTER

Through publications, research, collaboration, and involvement at professional and producer meetings, the Swine Center tackles issues such as food safety, manure management, and odor control.

AVIAN RESEARCH CENTER

The Avian Research Center focuses on interdisciplinary research. It work with avian industry representatives such as the Minnesota Turkey Growers Association to address industry related problems such as avian pneumovirus.

MINNESOTA EQUINE RESEARCH CENTER

The Minnesota Equine Research Center is an interdisciplinary program dedicated to basic and applied research on health and performance in horses. It also works to disseminate new knowledge to veterinarians and horse owners. This center recently became part of the University of Minnesota Equine Center.

GABBERT RAPTOR CENTER

The Raptor Center is facility for the treatment of raptors as well as an education and research center. Researchers at the center are especially interested in radio tracking, lead poisoning, anesthesiology, orthopedic surgery, and respiratory disease.

CENTER FOR DAIRY HEALTH MANAGEMENT AND FOOD QUALITY

The mission of the Dairy Center is to enhance animal health and welfare and promote the efficient, profitable, and environmentally sound production of quality food for consumers.

CENTER FOR ANIMAL HEALTH AND FOOD SAFETY

Animal health and food safety are intertwined. Furthermore, animal products find their way into medical devices, xenotransplants, pharmaceuticals and biologics as well as food. The center fosters interdisciplinary initiatives with producers, various sectors of the food industry, and agriculture and public health agencies in risk communication, research, quality control, and health certification and outreach education.

ANIMAL CANCER CENTER

Through its biotherapy program the Animal Cancer Center is helping prolong and improve the quality of life in cats and dogs with cancer. Researchers also work on cancer prevention and education for pet owners and veterinarians in diagnosis and treatment of animal cancer. The center's findings are also incorporated into ongoing human cancer research.

COMPANION ANIMAL HEALTH AND NUTRITION CENTER

The Companion Animal Health and Nutrition Center brings together investigators studying spontaneously occurring diseases in dogs and cats, with the goal of prevention and improved methods of treatment. Areas of emphasis include disease of the urinary system, canine genetics, and companion animal nutrition.

FOOD ANIMAL BIOTECHNOLOGY CENTER

The Food Animal Biotechnology Center promotes animal biotechnology through educational activities including seminars, workshops, and annual symposia.

ADVANCED GENETIC ANALYSIS CENTER

The Advance Genetic Analysis Center supports research and development of DNA-based technologies. It provides DNA sequence analysis with automated sequencing instrumentation, sequence data management and analysis, and automated DNA fragment analysis for genotyping and pedigree analysis. It also provides oligonucleotide synthesis and other custom services. The center is a part of the Biomedical Genomics Center, but is still based in the College of Veterinary Medicine.

SWINE DISEASE ERADICATION CENTER

The center is responsible for research, graduate education and professional teaching, continuing education, and certification in swine disease eradication.

CLINICAL INVESTIGATION CENTER

Clinical researchers use the Clinical Investigation Center (CIC) to support their clinical trials research. Dean Jeff Klausner established the nation's first CIC in 2000 to support the research efforts of the clinical faculty. The center is one of only four veterinary clinical investigation centers in the country. The mission of the CIC is to facilitate veterinary clinical trials and translational research that may lead to new drugs, devices, procedures and treatments for the benefit of companion animals and humans. The Veterinary Medical Center sees more than 40,000 clinical trials. Dr. Bert Stromberg was the initial co-director of the CIC. He was followed by Dr. Robert Washabau, professor of medicine and chair of the Veterinary Clinical Sciences department.

RECENT RESEARCH HIGHLIGHTS

Dr. Kapur

2000

In 2000, scientist Carrie Mahlum developed the first test to detect bovine viral diarrhea, saving the beef and dairy industries thousands of dollars each year. In 2001 Dr. Vivek Kapur and a team of researchers sequenced the genome of Pasteurella multocida, a bacterium that causes disease in poultry, cattle, swine, and humans. The work represents the first entire genome sequence of a veterinary pathogen. In collaboration with the USDA, Dr. Vivek Kapur led a team that completed the genome sequence of Mycobacterium paratuberculosis, the bacterium that causes Johne's disease in cattle.

In 2003 Dr. Sagar Goyal developed a vaccine to stop the spread of a severe respiratory disease caused by avian pneumovirus. Dr. Kent Reed, in collaboration with Virginia Tech University researchers completed the sequencing of the turkey genome sequence, giving turkey breeders a tool to improve traits such as meat yield, health and disease resistance, and fertility and reproduction.

In 2005, the Veterinary Diagnostic Laboratory developed a new and improved test for Porcine Respiratory Syndrome, a serious infectious disease affecting the swine industry.

2006

The research program developed many patentable inventions and lead to licenses that were sold to pharmaceutical companies. These usually involved the development of vaccines or compounds that are central for diagnostic tests. From 2006 to 2008, for example, patents and licenses were issued to James E. Collins, professor and director of the Veterinary Diagnostic Laboratory for "Porcine Reproductive and Respiratory Syndrome Virus and Methods of Use;" David Halvorson, professor emeritus, for "Avian Pneumovirus Vaccine"; James Mickelson,

professor, for "Method of Detecting Equine Glycogen Storage Disease IV"; Kakambi Nagaraja, professor, for "Avian Pneumovirus"; and Stephanie Valberg, professor and director of the Equine Center for a "Method for Detecting the Presence of Equine Glycogen Storage Disease IV in a Horse."
During the same period, commercial licenses were granted by:

- Marie R. Gramer, assistant clinical professor, for "Influenza A Virus Subtype H2N3 Isolated from Swine";
- Hans S. Joo, professor, for "A Method to Prepare Immunizing Substance for Prevention of Diseases in Pigs";
- Molly E. McCue, assistant professor, for a "Method of Detecting a Glycogen Synthase (GYSI) Mutation Associated with Equine Polysaccharide Storage Myopathy";
- Robert B. Morrison, professor, for "Online Submission for University of Minnesota LIMS System";
- Devi P. Patnayak, assistant clinical specialist, for "Influenza A Virus Subtype H2N3 Isolated from Swine";
- Carrie E. Wees, senior scientist, for "TaqMan RT-PCR for Simultaneous Identification of North American and European Isolates/Strains of PRRSV."
- Dr. Hans Soo Joo licensed Selectigen MJPRRS technology to MJ Biologics for production of PRRS viral antigen concentrate subunit vaccine.
- Dr. Simon Olivera discovered a common antigen and developed a serologic test for Hemophilus parasuis in swine which was licensed for commercial use.
- Two additional patents were issued in this period to Kurt Rossow, associate clinical professor, for "Mycobacterial Diagnostics"; and to Lingling Li, a former graduate student at the College who had a patent issued and completed her Ph.D.

2007

In 2007 Drs. Michael Murtaugh and Vivek Kapur were awarded USDA grants for multi-state collaborative research on porcine respiratory and reproductive syndrome (PRRS) and Johne's disease of cattle. The grant totaled $8.8 million.

- Drs. Stephanie Valberg and Jim Mickelson identified an inherited disease in American quarter horses called glycogen branching enzyme deficiency.
- Dr. Mitchell Abrahamsen and other researchers completed sequencing of cryptosporidium parvum, an intestinal parasite considered to be a major public-health threat for which there is no known treatment or prevention.
- Dr. Sandra Godden and co-workers identified a method for pasteurizing cow's milk on site without a significant loss of immunoglobin, which allows calves to benefit from the disease-fighting properties of their mother's milk.

2008

In 2008 Drs. James Mickelson and Ned Patterson and their research team discovered a gene highly associated with exercise-induced collapse in Labrador retrievers.
Drs. Elizabeth Pluhar and John Ohlfest successfully performed an experimental therapy for dogs with a type of fatal brain cancer. This therapy involved gene therapy and vaccines on brain tumors. Their patient, a shepherd mix dog named Batman, lived cancer-free for two more years and died from an unrelated cause. Dr. Jamie Modiano collaborated with Dr. Matthew Breen at North Carolina State University to identify a common genetic basis for cancer in humans and canines. They found that the genetic changes that occur in dogs diagnosed with certain cancers of the blood and bone marrow, including chronic myelogenous leukemia, Burkitts lymphoma, and chronic lymphocytic leukemia, are virtually identical to genetic abnormalities in humans diagnosed with the same cancers.

2009

Sagar Goyal, professor and co-chair of the Veterinary Population Medicine Department was awarded a National Institute of Health grant for more than $1.4 million for a study of particle sizes associated with airborne viruses. They developed methods to quantify viruses associated with airborne particles of diverse sizes and assess the survivability of these viruses in the environment. These methods were then used in swine barns and healthcare facilities to measure particle sizes associated with both viable and non-viable viruses to which workers may be exposed.

Sean Kennedy, assistant professor and director of the National Center for Food Protection and Defense was awarded a $607,569 grant from the Department of Homeland Security for a review of the National Biosurveillance Integration System, which combines health data, agricultural data, food data, and environmental monitoring. The one-year project investigated the current bio-surveillance environment and available resources, and explored case studies to aid in the improvement of the system.

Krishona Martinson, assistant professor of Animal Science, and veterinary faculty Molly McCue, Jim Mickelson, and Stephanie Valberg were awarded a $500,000 National Research Initiative integrated genomics grant for a research and extension program devoted to equine metabolic syndrome and shivers.

Michael Murtaugh and Scott Wells were awarded grants by the USDA to research emerging plant and animal pest disease issues. The program was designed to provide one-time seed funding to help initiate work requiring immediate attention until long-term resources could be secured.

Michael Murtaugh was awarded $200,000 to study the etiology and molecular pathogenesis of porcine high fever disease (PHFD). Since its appearance in the spring of 2006, PHFD devastated the swine industry in China, causing severe economic hardship to swine producers and increased prices for pork, the principal protein source in the Chinese diet. It spread to neighboring countries and became the scourge of Vietnamese swine production. Better understanding of the etiology and pathogenesis of the disease was needed to prevent its introduction into the United States. The goal of the research was to rapidly identify the nucleic acids and proteins that are diagnostic for PHFD for development of diagnostic tests and further investigation of molecular pathogenesis.

Scott Wells was awarded $200,000 for the evaluation of the cost-benefit of the use of the Johne's disease (JD) vaccine while considering effects on bovine tuberculosis. There was an urgent need to evaluate the economic impact of JD vaccination on the control of the disease and its impact on bovine tuberculosis (bTB) eradication due to the high herd prevalence of JD and the emergence of bTB in the United States.

James Collins was awarded $300,000 from the USDA Animal and Plant Inspection Service for evaluation of avian influenza A virus matrix H5 AI RT PCR, and H7 AI RT PCR diagnostic tests in swine samples; Han S. Joo was awarded $108,578 from MJ Biologics Inc. for evaluation on productive immunity of PRRS virus envelope proteins in pigs; Tom Molitor received $202,620 from Pfizer Inc. for pathogen investigation, surveillance, and acquisition; Srirama Rao was awarded $357,938 from the National Institutes of Health for a study of serotonin (5-HT) and 5-HT2A in allergic inflammation;

Mark Rutherford received $229,500 from the USDA for doctoral training of veterinary scientists in animal infectious agents and zoonoses; Vicki Wilke received $129,985 from Solace Pharm Inc. for evaluation of a novel compound for use in the control of osteoarthritic pain in dogs; Wilke was also awarded $119,672 from the Morris Animal Foundation to study chromosomal regions and genes associated with cranial cruciate ligament rupture in dogs.

Also in 2009, researchers at the University of Minnesota and Virginia Tech University received a two-year $908,280 grant from the USDA to complete sequencing the genome of the domesticated turkey, Meleagris gallopavo. Dr. Kent Reed was the primary researcher to complete the genome sequencing, assemble the genome sequence and identify genes and functions in the final genome.

2010-2011

During the fiscal year 2010-2011 College of Veterinary Medicine researchers were awarded grants totaling more than $7 million to investigate topics including avian influenza, bovine tuberculosis, and arthritis and cancer in dogs. Following is a list of research grants of $50,000 or more.

- An epidemiological approach for reducing foodborne pathogens. Principal investigator: Randall Singer
- A systems approach to develop improved bovine tuberculosis mitigation strategies. Principal investigator: Scott Wells
- Bovine tuberculosis and chronic wasting disease testing. Principal investigator: Larissa Minicucci

Dr. Dee

- Capturing the One Health Momentum for global implementation. Principal investigator: William Hueston
- Chronic wasting disease/tuberculosis PCR avian influenza sample. Principal investigator: James Collins
- Classical swine fever surveillance, pseudorabies survey. Principal investigator: Jerry Torrison
- Companion animal pathogenic agreement. Principal investigator: Kelly Wilke

Comparing the efficacy of Ingelvac PRRS vaccines Principal investigator: Scott Dee

- Comparison of low-dose aspirin versus individually monitored unfractionated heparin on survival of dogs with IMHA. Principal investigator: David Polzin
- Discovery and characterization of heritable and somatic cancer mutations in golden retrievers. Principal investigator: Jamie Modiano
- Disease transmission risk between invasive American mink. Principal investigator: Randall Singer
- Effect of an oral antibiotic product on scours. Principal investigator: Sandra Golden
- Effect of orally administered probiotics on rotavirus infection and pigs. Principal investigator: Robert Morrison
- Efficacy of anthelmintics in beef cattle. Principal investigator: Bert Stromberg
- Enhancing multicultural diversity of veterinary health sciences. Principal investigator: Mark Rutherford
- Epidemiology of Staphylococcus aureus in multiple-site pig farms. Principal investigator: Peter Davies
- Evaluation of the efficacy of PF-05253665 against the occurrence of clinical metritis in preparturient dairy cows. Principal investigator: Ricardo Chebel
- Facilitating public-private partnerships to support national preparedness for animal health emergencies. Principal investigator: William Hueston
- Fate of neural stem cells during viral encephalitis. Principal investigator: Maxim Cheeran
- Foreign animal and zoonotic disease defense year fiver avian influenza viruses. Principal investigator: Carol Cardona
- Function of FeyRHC gene in rheumatoid arthritis. Principal investigator: Jianming Wu
- Gene loci and risk analysis for recurrent exertional rhabdomyolysis. Principal investigator: James Mickelson
- Genetic analysis of muscle disorders in quarter horses. Principal investigator: Stephanie Valberg
- Impact of pigs entering a region on feasibility of PRRS virus. Principal investigator: Robert Morrison
- Investigation of the epidemiology of mycoplasma hyorhinis. Principal investigator: Alberto Rivera
- Mechanistic relationship of IL-8 cell proliferation and survival of canine hemangiosarcoma. Principal investigator: Jamie Modiano
- Poult enteritis leads to light turkey syndrome. Principal investigator: Devi Patnayak
- PRRS virus modulation of the poor seen antibody repertoire. Principal investigator: Michael Murtaugh
- Randomized non-inferiority clinical trial evaluating three commercial dry cow mastitis preparations. Principal investigator: Sandra Godden
- Regulation of neutrophil function and information by ADAMIZ during infection. Principal investigator: Bruce Walcheck
- Studies on pathogenesis and immunity of turkey cellulitis. Principal investigator: Kakambi Nagaraja
- Viral hemorrhagic septicemia surveillance. Principal investigator: Nicholas Phelps

2012

In 2012, several notable projects occurred. College researchers collaborated with other colleges and universities for major research projects. For example, the Mayo Clinic and partners from the University of Minnesota College of

Veterinary Medicine and College of Pharmacy, University of Pennsylvania School of Veterinary Medicine, Perelman School of Medicine at the University of Pennsylvania, and Neuro Vista Corporation were awarded a five-year $7.5 million grant from the National Institutes of Health to study ways to predict and control epileptic seizures in dogs and people. Dr. Ned Patterson was the principal investigator at the college.

Another similar collaborative project involved HIV/AIDS research. Dr. Pam Skinner, associate professor in the Veterinary Biomedical Sciences department, and collaborator Dr. Liz Connick, professor in the University of Colorado School of Medicine's Division of Infectious Diseases, were awarded a five year research grant totaling more than $3.7 million from the National Institutes of Health. Ultimately, the research could contribute to the development of a protective vaccine or cure for HIV-1, the virus that causes AIDS.

Drs. Jim Mickelson, Molly McCue and Jessica Patterson were among the authors of "Mutations in DMRT3 Affect Locomotion in Horses and Spinal Circuit Function in Mice" published in Nature on August 30. The paper detailed the discovery of a naturally occurring genetic mutation in the domestic horse that likely alter the transmission of nerve signals in the spinal cord.

Research by Dr. Richard Isaacson and his team at the University of Minnesota and the University of Illinois found that antimicrobial growth promoters administered to swine can alter the kind of bacteria in the animal intestinal tract, resulting in an accelerated rate of growth and development in the animals.

2013-2014

In 2013 a team of researchers including Dr. Stephanie Valberg discovered that a toxin in the seeds of the box elder tree can cause seasonal pasture myopathy in horses. This muscle disease is fatal in more than 90% of cases. Until this discovery, veterinarians and researchers had not known what caused the disease, which was often confused with colic or founder.

The USDA awarded a five-year $3 million grant to a team of researchers to study genetic resistance to porcine respiratory and reproductive syndrome. In addition to researchers at Iowa State University, the collaborative effort included Drs. Montse Torremorell and Bob Morrison from the Minnesota CVM and researchers at Kansas State University, the U.S.D.A., and the Roslin Institute in Scotland.

Research funding data for the 28 veterinary colleges in the U.S. compiled by the American Association of Veterinary Medical Colleges for 2013-2014 shows that the Minnesota CVM ranked fifth in the relative size of the research program following Purdue, Wisconsin, Tuskegee, and Ohio.

A five-year award of $50 million from the United States Agency for International Development was won by the University of Minnesota and Tufts University in Massachusetts to create an international partnership to strengthen global workforce development against emerging pandemic threats. Called One Health Workforce, the project focused on building a workforce in Africa and /Southeast Asia to conduct disease surveillance, training, and outbreak response. Faculty from the University of Minnesota Programs in veterinary medicine, human medicine, nursing, public health, education and development, and environmental health collaborated under the leadership of Dr. David Chapman, professor, Department of Organizational Leadership, Policy, and Development, and Drs. John Dean and Katey Pelican in the Veterinary Population Medicine Department.

2016

In 2016 the University of Minnesota College of Veterinary Medicine and College of Food Agricultural and Natural Resource Sciences were awarded a $1.4 million grant to develop animal health care practices care for organic dairy farms. The U of M researchers led veterinary researchers from the University of Colorado, Iowa State University, and Ohio State University. The grant was sponsored by the U.S. Department of Agriculture's Organic Research and Extension Initiative.

Led by Dr. Ulrike Sorge and Dr. Bradley Heins, in the Department of Animal Science, the project generated new data about effective preventive and curative animal care practices and built an online resource for veterinarians about effective alternative treatment.

During the three-year research project, the team evaluated alternative therapies and prevention strategies for common cattle diseases on several large organic dairy farms in Colorado and New Mexico as well as the West Central Research and Outreach Center in Morris, Minnesota. The collaborative effort assessed innovative preventive and curative approaches for mastitis, lameness, reproductive disorders, calf health, and fly management under field conditions on organic dairies across the nation.

In 2016, the National Institutes of Health awarded a grant to study a new immunothesis to treat ovarian cancer with natural killer cells. The research was led by Drs. Bruce Walcheck and Jimmy Wu, and Dr. Dan Kaufman, director of the cell therapy program at the University of California-San Diego.

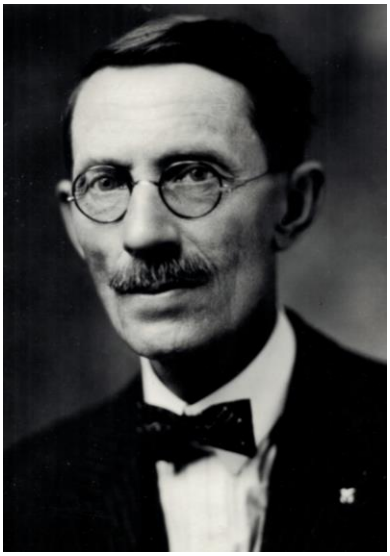
"We're focusing on ovarian cancer because it's a type of cancer that has not responded well to immunotherapy," Walcheck said. "We also believe we can apply this approach to other cancers in the future."

Dr. Kakambi Nagaraja was awarded a three-year, $491,000 grant from the Agriculture and Food Research Initiative Foundation Animal Health and Disease Program for studies on clostridial dermatitis, an emerging condition in turkeys and broiler chickens in the U.S.

ADD 2017-2021

Chapter 4
Veterinary Diagnostic Laboratory

The Veterinary Diagnostic Laboratory is the Minnesota Board of Animal Health's official laboratory for diagnostic work on animal and poultry diseases. It is supported through special appropriations from the legislature.
The laboratory began in a rather quiet and unobtrusive manner. Veterinarians on the St. St. Paul Campus of the University of Minnesota College of Agriculture were being hired to teach veterinary information classes and they began diagnosing animal diseases for the public. When Dr. Myron H. Reynolds joined the staff in 1893, the Division of Veterinary Medicine was developed, and he became the staff veterinarian. When the Minnesota Board of Animal Health (MBAH) was created in 1903, the animal disease laboratory work was conducted at the Minnesota Board of

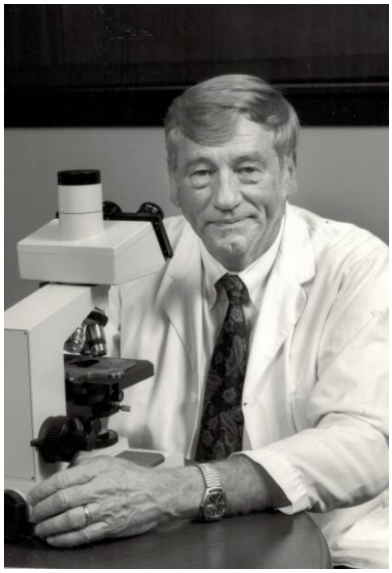


Dr. Reynolds

Dr. Glen Nelson

Dr. Fenstermacher

Dr. Barnes



Dr. Bergland

Dr. Jim Collins

Health (MBH) laboratory. After a brief time, the two boards met to work out terms for providing the MBH with

reimbursement for the cost of this service. When they were unable to agree, the MBAH began searching for alternative laboratory services.

Dr. Reynolds, who was a member of the MBAH and on the staff of the University's Agricultural Experiment Station, proposed the MBAH move its animal laboratory facilities and equipment to the St. Paul Campus. Reynolds saw this arrangement as a way for the College of Agriculture to obtain specimens for educational and research purposes. The MBAH adopted the proposal in June 1904.

The MBAH hired Dr. W. L. Beebe, a veterinarian, to do the bacteriological work. In 1905, the MBAH wrote to veterinarians throughout the state instructing them to send specimens to Dr. Beebe at the University Experiment Station in St. Anthony Park, in care of Ballard's Express, St. Paul.

The MBAH later arranged to have a laboratory installed in the basement of the Old Minnesota Capitol Building. In 1912, Dr. Beebe resigned to establish a private laboratory. The MBAH offered the position to Dr. Willard L. Boyd, a 1909 graduate of Kansas State at a salary of $1,600 per year. At the time, Dr. Boyd was a member of the staff at the University and declined the offer.

The MBAH then contacted Dean W. F. Wood of the College of Agriculture to negotiate an arrangement for continued laboratory services. On July 12, 1912, the MBAH and Dean Wood reached an agreement whereby the laboratory equipment would be moved to the University's St. Paul Campus. The MBAH agreed to pay the laboratory assistant's salary for six months of the year. The University agreed to furnish the supplies needed, and Dr. Boyd was assigned to conduct the diagnostic work for the MBAH. Dr. Boyd oversaw the general laboratory work, and other members of the veterinary staff helped in their specialty areas.

MINNESOTA LIVESTOCK SANITARY BOARD LABORATORY ESTABLISHED

The laboratory's work increased over the years. When Dr. C.P. Fitch replaced Dr. Reynolds as head of the College of Agriculture's Division of Veterinary Medicine in 1917, the operation of the laboratory was placed under the University's direction and became known as the Minnesota Livestock Sanitary Board Laboratory.

Dr. H.C.H. Kernkamp, an Ohio State 1915 DVM graduate was hired as an instructor in the Division of Veterinary Medicine and unofficially oversaw the laboratory from about 1926 to 1928.

In October of 1926, the College of Agriculture notified the MBAH that the amount of work requested of the laboratory had increased so greatly that it would be impossible to continue without more funding. The college requested $7,500 to operate that year and $6,000 to operate the following year. The MBAH included this request for additional funds in its legislative request. Although Governor Theodore Christianson deleted the request from the MBAH legislative request, he promised to convince the University to provide the extra funds. However, the University determined it could not continue to provide the service with the available funds.

On November 21, 1926, Dr. Cotton, the executive secretary of the MBAH, wrote to University president Lotus Coffman stating that the board could raise $2,000 annually for the next two years to operate the laboratory. The University matched this amount and the laboratory continued in operation.

At a September 26, 1927 meeting, the University was represented by president Coffman, Dean W. C. Coffey, and Dr. C. P. Fitch. The MBAH was represented by Colonel C. H. Marsh, W. S. Moscrip, and Dr. C. E. Cotton. Everyone in attendance agreed the service should continue if possible. To cover the immediate biennium, the MBAH committed to find within the limits of its budget enough funds to defray half of the costs of routine service for the next two years. The University agreed to supply the remaining funds.

Both parties agreed to appeal to the legislature, and their efforts were successful. The 1929 legislature appropriated $7,500 per year for the next biennium and funded the salary of a technician for pullorum testing.

MINNESOTA VETERINARY DIAGNOSTIC LABORATORY (MVDL)

In the meantime, the laboratory became known as the Minnesota Veterinary Diagnostic Laboratory (MVDL).

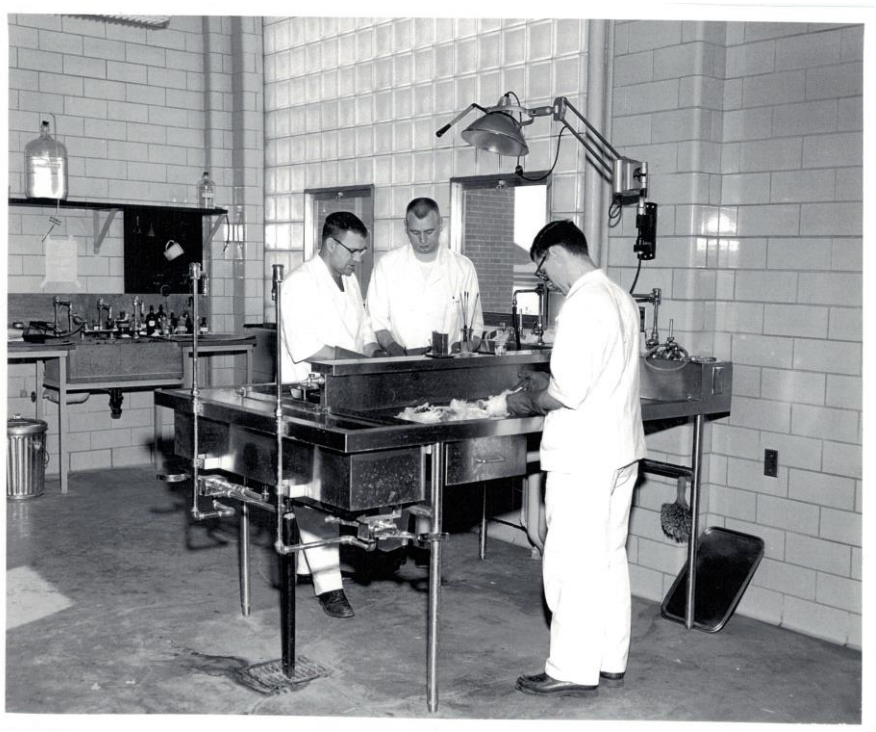
Dr. Ruel Fenstermacher joined the staff as Director of MVDL on January 1, 1928. He graduated in 1917 from Ohio State University and was discharged from the U.S. Veterinary Corps in 1919, when he began work with the MBAH. He was assistant secretary of the MBAH at the time he was appointed director of the diagnostic laboratory.

Fenstermacher was especially interested in diseases of wild animals with an emphasis on moose and deer disease. Under his direction, laboratory services to the animal and poultry industries increased dramatically.
From early on, the laboratory was in what is now known as the Old Anatomy Building that was built in 1901. Animals were necropsied in various places in the building and occasionally in the autopsy room of the Serum Building.
Dr. Boyd handled the laboratory work involving cattle, Dr. Kernkamp handled the swine. Dr. Pomeroy, a 1933 D.V.M. from Iowa State, was hired to handle the poultry.
On November 19, 1943, a fire started in a large walk-in incubator on the second floor of the Old Anatomy Building and spread to the attic. The fire destroyed much of the laboratory equipment, part of the library, and the older records of the Minnesota Veterinary Medical Association that were stored in the attic. Laboratory equipment was in short supply and difficult to replace due to the demands of World War II. As a result, the MVDL was moved to the Serum Building. This building had previously been used for the production of anti-hog cholera serum and virus.
In 1948, the laboratory moved into the first floor and part of the second floor of the Temporary East of Haecker Building, or "T.E.H."
Under a cooperative agreement with the Bureau of Animal Industry, the federal state Brucellosis Laboratory became associated with the MVDL. A cooperative arrangement was made with the Minnesota Department of Health on zoonotic diseases such as rabies.

DIVISION OF VETERINARY DIAGNOSTIC LABORATORY (DVDL)

When the School of Veterinary Medicine was founded in 1947, the MVDL was placed in the College of Agriculture Department of Veterinary Science. After the AVMA Council on Education questioned the arrangement, Dean Thorp created the Division of Veterinary Diagnostic Laboratory (DVDL), thus allowing Dr. Fenstermacher to participate in division head administrative meetings.
The diagnostic laboratory was involved in teaching veterinary students since the first class became seniors in 1950-1951. Students were rotated through the laboratory to gain experience in necropsy. Graduate students also spent time in the laboratory for experience and study of disease problems. The arrangement was unusual as the diagnostic laboratory provided teaching staff but no curriculum was reflected in the school's material. Eventually the department developed five graduate courses that were included in the School of Veterinary Medicine catalog.
The DVDL staff gradually increased over the years. Remy Brooke served faithfully as DVDL technician beginning in 1949. Dr. Robert Leary assisted in the DVDL for a brief time after he graduated in 1951. In 1953, Dr. Charles Gale joined the staff while he also took graduate work. Dr. Donald Barnes came in 1955 and took on graduate work. Dr. Earl Thompson worked in the DVDL for a brief time after graduating in 1955.
In 1957, Dr. John Higbee was recruited to fill a new staff position in response to requests from veterinarians throughout the state to have a staff member with practice experience. Dr. Higbee graduated from Iowa State

University in 1939 and had a successful practice in Albert Lea. In addition to Dr. Higbee, Dr. Martin Bergeland and Dr. Harley Moon were also hired in 1959 and 1960, respectively.



Drs. Higbee and Billings

CVM - VETERINARY DIAGNOSTIC LABORATORY (VDL)

While the 1948 move to T.E.H. had provided more space to the diagnostic laboratory, the laboratory had outgrown these facilities by the late 1950s. In 1957, the College of Agriculture School of Veterinary Medicine became the College of Veterinary Medicine (CVM) and the Division of Veterinary Diagnostic Laboratory became the College of Veterinary Medicine -Veterinary Diagnostic Laboratory (VDL).
The 1957 legislature appropriated funds to construct a new building that was completed in 1961. In a short day, Drs. Martin Bergeland, Clifford Ling, Harley Moon, and Ned Olson moved all the equipment into the new building. The building was dedicated in 1961, though Dr. Fenstermacher, sadly, died before the dedication.
Dr. John Higbee was subsequently appointed head of the Department of Diagnostic Laboratories. Dr. Glen Nelson joined the staff in 1961 and Dr. Barnes returned from a research project in in Montana the following year. Dr. Moon left the staff in 1965 and Dr. Bergeland left in 1970. Drs. Ronald Werdin, Harold Kurtz, and George Ruth subsequently joined the staff in 1971, 1972, and 1976, respectively.
The 1971 legislature appropriated funds to build additional facilities for the Veterinary Diagnostic Laboratory. In October, 1973 the VDL began charging a fee for processing specimens. In 1973, when Dean Sidney Ewing reorganized the CVM administration, the VDL was placed under the direction of Dr. Timothy M. Brasmer, associate dean of Veterinary Services, and the staff was placed in the Department of Veterinary Pathobiology. This

Dr. Nelson

arrangement caused difficulties as the VDL was the official laboratory of the MBAH and was supported by a special legislative appropriation.

Except for a brief period, Dr. John Higbee was head of the VDL until 1978. He died the following year. Dr. Harold Kurtz served as acting head on two occasions. Dr. George Ruth served as head of the VDL from January 1, 1979, to June 30, 1979. Dean Robert Dunlop restored the department status of the VDL effective July 1, 1982.
Additional VDL members were hired, including Dr. Sager Goyal in 1982, Dr. Lawrence Felice in 1984, Dr. James Collins in 1986, and Dr. Daniel Shaw in 1987.
On August 1, 1983, Dr. Martin Bergeland returned as chairman of the new Department of Diagnostic Investigation and director of the Veterinary Diagnostic Laboratory. He served as the director of the VDL from 1983 until his retirement in June 1998.
In 1984, the official laboratory of the Minnesota Racing Commission was placed in the VDL. Dr. Ashak Singh, a toxicologist, was hired and put in charge of the testing program. Later the service was transferred to a private company along with Dr. Singh.
The work of the diagnostic laboratory intensified. VDL accessions were 3,450 in 1961 and increased to 43,421 in 1991. This required an increase from 13 staff members in 1961 to 64 staff members in 1991. The effort to eradicate diseases such as hog cholera, and the appearance of new diseases required different and more complicated laboratory equipment, as well as more space. With support from the state's veterinary community and livestock producers, the college lobbied Minnesota legislators and the legislature appropriated funds for a new building which doubled the size of the laboratory. The new 18,850 square foot building cost $7,900,000, and opened in November 1992.

DR. JIM COLLINS APPOINTED DIRECTOR

Dr. Jim Collins was appointed director of the diagnostic laboratory in June, 1998. He was largely involved in expanding the diagnostic capability of the laboratory. The VDL upgraded its computer systems and continued to develop or provide new diagnostic procedures. In 2000, 341 diagnostic tests were provided. Included were 5 new molecular diagnostic tests for Avian Pneumovirus, Bovine Viral Diarrhea, circovirus type 1 and type 2, Clostridium perfringens, and toxin gene typing. New reproduction pregnancy tests were offered for horses and dogs, and a laboratory test for overo lethal white foal disease was also made available. A new strain of swine influenza (H2N2) emerged and an H1 test for this virus was added.
In 2001, a major achievement included the identification of a new strain of swine influenza virus designated H1N1. This expanded influenza monitoring using advanced molecular techniques. The VDL developed a new laboratory test leading to five actively licensed technologies. Royalty income from diagnostic laboratory's inventions continues to rank second in the Academic Health Center, and fourth within the University of Minnesota.
The University of Minnesota Veterinary Diagnostic Laboratory has become a well-respected facility. The state's veterinarians, livestock farmers and animal breeders depend heavily on its investigative scientists and submit approximately 60,000 cases each year. The VDL performs 1.4 million tests on the submissions.
Molecular diagnostic tests analyze genetic content for disease information, identifying a disease or predisposition for a disease by analyzing the DNA and RNA of an organism. These tests may involve sequencing specific regions of DNA to identify genetic mutation or detect small amounts of viral or bacterial DNA in clinical samples. The molecular diagnostic laboratory performs tests and procedures for dozens of viruses and bacteria, including avian metapneumovirus, bovine viral diarrhea, influenza, porcine reproductive and respiratory virus; bacteria such as salmonella and streptococcus and other conditions such as exercise-induced collages in dogs, polysaccharide storage myopathy in horses, and red martin in cattle. The VDL also uses molecular diagnostics to rapidly detect, type, sequence and differentiate strains of the same pathogen, such as the different strains of influenza virus. This makes Minnesota one of the better prepared states for dealing with avian and swine influenza. The VDL molecular laboratory is now among the most advanced and highest volume laboratories in the United States.
In 2002, laboratory testing was expanded to help control avian Pneumovirus disease in turkeys. A vaccine developed by a research team led by Dr. Sagar Goyal was approved for use by the U.S. Department of Agriculture in 2002.
In 2003, the VDL played a prominent role in the surveillance and testing for Chronic Wasting Disease (CWD) in deer in Minnesota. CWD was diagnosed in a farmed elk in Minnesota and the Department of Natural Resources requested assistance from the VDL to conduct an epidemiological survey of deer in Minnesota. The college hosted the state's first professional CWD training seminar and provided students to help collect tissue samples for testing. More than 5,000 wild deer brain samples were tested, but all were negative.

In 2003, VDL played a vital role in eradicating swine pseudorabies in Minnesota by providing laboratory testing for the Minnesota Board of Animal Health. In the same year the VDL received accreditation as a full-service laboratory for all animal species, and it was the first Veterinary Diagnostic Laboratory to become a full member of three major laboratory networks including the Laboratory Response Network of the Food and Drug Administration and the National Animal Health Laboratory of the U.S. Department of Agriculture.

NEW MOLECULAR DIAGNOSTIC AND MICROBIOLOGY LABORATORY 2005

In 2005, newly renovated space housing a molecular diagnostic and microbiology laboratory was dedicated and a biohazard waste disposal system – a chemical "tissue digester" manufactured by WR2 – was installed. The digester allowed the lab to dispose of animal waste on site, so potential infectious agents can't escape.

BIOSAFETY LEVEL 3 NECROPSY LABORATORY 2008

In 2008 a biosafety level 3 necropsy laboratory addition to the VDL necropsy floor was completed. This was a part of a nationwide effort to respond to outbreaks of disease that could potentially spread from animals to people and enable VDL staff to work safely with airborne zoonotic pathogens.
The VDL is the official laboratory of the Minnesota Board of Animal Health. Its primary mission is to protect and promote animal and human health through early detection and monitoring of animal diseases. It provides quality diagnostic services covering necropsy, bacteriology, clinical chemistry, electron microscopy, serology, endocrinology, histopathology, immunohistochemistry, virology, parasitology, molecular diagnostics and toxicology to accomplish its mission.
The VDL molecular laboratory is now among the most advanced and highest volume laboratories in the country, capable of testing 500-750 samples a day with same day results for many of the tests.

MINNESOTA POULTRY TESTING LABORATORY 2016

In 2016 the Minnesota Poultry Testing Laboratory (MPTL), a branch laboratory of VDL in Willmar, Minnesota was provided 8.5 million dollars by the Minnesota legislature to expand the capability of the laboratory. In 2015, a catastrophic outbreak of High Path Avian Influenza H5N2 spread across the U.S., resulting in the loss of 48 million chicken layers and turkeys, including 9 million in Minnesota. Dr. Dale Lauer, the Director of MPTL is Assistant Director of the Minnesota Board of Animal Health in charge of poultry programs.
Dr. Collins stepped down as Director of the Minnesota Veterinary Diagnostic Laboratory in 2016 and Dr. Jerry Torrison was appointed Director of the University of Minnesota Veterinary Diagnostic Laboratory March 16, 2016.

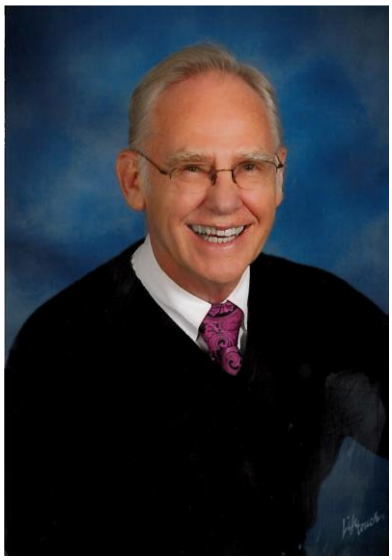
Chapter 5
Medical Imaging Program

At the beginning, the college had two faculty members with some skill in radiology. The key person was Dr. Francis Spurrell, who had completed a Ph.D. in veterinary medicine at the University of Minnesota in 1953 and had taken courses in radiology at the medical school. He became the radiologist for the clinic in 1950. Dr. Spurrell received the first major research project by the College from the Wright Air Development Center at the Wright-Patterson Air Force Base in Ohio to determine the effect of radiation on large animals. Burros were used in the project, which

Drs. Francis Spurrell and Bee Hanlon

began on July 1, 1958, and ended on January 1, 1962. The total budget for the project was $275,000. Spurrell also obtained a large grant to study dysplasia in dogs. The X-ray equipment installed in the new clinic was considered the most powerful in a veterinary college in the country and initially served as radiology for both clinics.
Dr. Carl Jessen received his Ph.D. in August 1969 and in 1972 was hired as Assistant Professor. He served as Division Head of Radiology from 1974 to 1977 and was appointed Director of the Veterinary Teaching Hospital from 1977 to 1991.

Bee Hanlon graduated with the second veterinary class in 1952. She remained in the college to complete a master's



Dr. Jessen

Dr. Feeney

degree, specializing in radiology. In 1969, she became the first woman Diplomate of the American College of Radiology. She took a quarter leave to Bristol, England followed by a sabbatical year in the Radiology Department at the Royal Veterinary College in Stockholm, Sweden. Dr. Hanlon assumed the radiology needs for the Division of Small Animal Medicine and served as primary radiologist for small animal needs until 1985.
Dr. Patricia A. Walter received her M.S. degree and was hired in 1985 as Assistant Professor, serving as radiologist until 2003.

Dr. Daniel Feeney joined the faculty as a radiologist in 1980 and became head of the Division of Radiology.

A history of the department follows, provided by Dr. Feeney.

Medical Imaging (MI) acquired a sophisticated radiographic and fluoroscopic room that remained in operation through the move into the new Veterinary Medical Center (VMC) until the early 2000s. This equipment allowed angiographic (cardiovascular) imaging as well as general gastrointestinal and urogenital imaging in real time. It also had the first capabilities of standing equine or bovine thoracic imaging. During that time, MI also acquired its first full spectrum ultrasound machine in 1981 and upgraded from orthovoltage to Cobalt-60 radiotherapy in 1983. MI initiated weekly computed tomography (CT) capabilities using a mobile scanner based in an over the road tractor trailer in 1985. This was a major change, allowing predictable and reproducible axial imaging as well as 3-dimensional image reconstruction. The new Veterinary Medical Center was opened in the early summer of 1982. Shortly thereafter, MI started offering radioiodine therapy for hyperthyroid cats.
A standard CT scanner was acquired in 1994 which allowed daily access to that technology. It was replaced in 2001 with a spiral CT scanner which cut scan times in half. In 1996, an Acuson ultrasound machine was acquired that allowed Doppler blood flow studies. Because of the high utilization of small animal ultrasound, MI changed scanners several times in the next two decades to keep up with technologic advances. During the 1990s, MI instituted weekly magnetic resonance imaging (MRI) using a mobile low field scanner based on an over the road tractor trailer. Nuclear medicine using systemically administered radioisotopes with a gamma camera for portal venous imaging, bone scans, thyroid scans as well as some ventilation and perfusion studies.
In the first decade of the 2000s, as mentioned above, MI acquired a spiral CT scanner. This equipment signaled the rebirth of CT imaging that up to that time had been superseded by evolving magnetic resonance imaging (MRI). There was continued evolution of the ultrasound service, and new radiographic and fluoroscopic equipment was installed in 2002.

As the demand for more sophisticated radiotherapy services grew (and the government became more worried about Cobalt-60 isotope installations), the VMC installed a 6 MV linear accelerator to replace the earlier Cobalt-60 unit. This provided rotational therapy, multi-leaf collimation based on CT images, and the opportunity for full computer-based treatment planning.

In March, 2005, VMC imaging went fully digital when an enterprise-wide Picture Archive and Communication System was installed which nearly eliminated the use of film for imaging. The system linked all imaging equipment, and allowed all images to be distributed throughout the VMC, and between the VMC and the Equine and Raptor Centers.

Probably the greatest evolution in MI was the installation of a 3.0 Tesla superconducting MRI unit in January 2008. Spinal imaging changed from myelograms to MRI, and from simple pre- and post-contrast, iodine-based CT scans of the brain to full spectrum pulse sequences of MRI, including those that used not only hydrogen mobility but also blood flow, gadolinium-based contrast medium, spectroscopy, and fluid diffusion to create the image or its graphic analysis. The industry standard at the time was 1.5 Tesla, but the MI staff believed future MRI imaging would involve higher field strengths, and Minnesota became the first U.S. school of veterinary medicine to install a 3.0 Tesla scanner.

The department installed a 64-slice high speed spiral CT scanner in the fall of 2011. It was capable of whole body imaging on any small animal patient in less than ten seconds. This changed the cancer staging approaches in all the VMC sections because it allowed detailed screening of the lungs for metastatic disease at the same time the rest of the body was investigated for abnormalities related to the cancer or relevant comorbidities. The result was a series of dramatic changes in the approach to selected cancer cell types for both surgery and radiotherapy. This scanner links to the upgraded linear accelerator that became operational in the spring of 2016.

The efficiency of the radiologists and the timeliness of their reports was dramatically enhanced when speech recognition capability was installed in 2011. This computer-based dictation system linked with both the images on the Picture Archive and Communication System and with the electronic medical record system. In most circumstances, a finalized report is in the medical record on the same day the imaging procedure was performed.

The ever-evolving ultrasound capabilities made another leap forward in 2014 with a scanner capable of image fusion, combining a real-time ultrasound image into a previously acquired CT or MRI image for better definition of lesions and image-guided sampling. This ultrasound machine also had a modicum of elastography capacity.

Another 3.0 Tesla MRI unit was installed in June 2022 will allow for faster imaging allowing shorter safer anesthetic duration for patients. Many of the 400 patients rely on this MI for evaluation of seizure disorders and spinal injuries.

Chapter 6
Dairy Program

During the late 1980s the dairy curriculum was typical of veterinary colleges at that time. The senior year was a prescribed series of rotations that were essentially the same for all students. Dairy clinical medicine was mainly taught using the caseload in the large animal teaching hospital. This model was proving difficult from an educational point of view because the number of cases was limited and because the cases that did get referred to the veterinary teaching were often not typical of what dairy practitioners saw day-to-day. This made it difficult to teach veterinary students about the general health problems and ordinary diseases of dairy cattle. To attract cases for teaching, there were subsidies paid to reduce the cost of food animal cases and in some cases the college provided a transport service that would bring interesting cases to the hospital for treatment and return them to the farm afterwards. This approach to teaching dairy medicine continued into the early 1990s, but it was becoming clear that it was no longer adequate to prepare students for dairy practice. In addition to the in-hospital clinical training, the college also operated an ambulatory service which provided an opportunity to work with faculty outside of the teaching hospital. All students were required to rotate through this service, regardless of their professional career plans. The ambulatory rotation scheduled days to teach about mastitis and milking systems, nutrition, reproduction, beef cattle, and equine practice. A small cadre of dairy herd clients was maintained by the reproduction service and used to teach pregnancy diagnosis. As part of this experience, the college also operated a large animal clinical practice with one faculty member in Cannon Falls.

The early 1990s brought substantial changes to the senior clinical curriculum, and these had a significant effect on the dairy program. The college shifted its senior year to a system that allowed students choose a track for their clinical training. This meant that much of the class no longer participated in any dairy senior rotations. At the same time, this new curriculum created the opportunity for the dairy faculty to create far better focused and more extensive clinical training experiences for students whose career aspirations included dairy medicine. These new specialized rotations included a rotation in reproductive management and palpation, and another in bovine surgery. There was a new beef cow-calf rotation for students at Clay Center in Nebraska, and a beef feedlot rotation taught at some large feedlots in Manitoba. The pathology faculty developed a new food animal diagnostics rotation to teach postmortem and other diagnostic techniques applicable to clinical practice.

For the first time, a dairy production medicine rotation was offered. Dairy production medicine describes the skills that veterinarians need to manage a dairy and improve health, productivity, welfare, and profitability. The teaching hospital continued to offer rotations in large animal medicine and large animal surgery, but the rotations gradually grew to focus on the existing caseload, principally horses and a growing caseload of camelids. The dairy caseload continued to dwindle, as did the opportunity to teach dairy medicine and surgery for individual cows.

TRANSITION MANAGEMENT FACILITY IN LATE 1990'S

The College affiliated with the owners of Baldwin and Emerald Dairies in Western Wisconsin to develop an education and research facility for training veterinary students, providing continuing education for veterinarians and dairy professionals, and conducting clinical and applied research on dairy cattle diseases. The 2,500 cow Emerald and Baldwin Dairies provided their herd for teaching and research.

The development of a specialized facility that would house dry cows, calve them, and support them through the early stages of their next lactation. With financial support from the college, the dairy built a stand-alone unit named the transition management facility (TMF). The TMF immediately played a key role in training the college's dairy students. The facility included a small dormitory, kitchen, classroom, and some laboratory space within the dairy facility itself. The facility calved 2,800 Holstein cows per year and in doing so provided a unique opportunity for students to learn about cows throughout the transition period. Cows that developed common illnesses in the peri-partum period were used to teach students about routinely occurring clinical diseases during this high-risk period. The TMF provided clinical training not only for University of Minnesota students, but also for students from other colleges of veterinary medicine across North America.

In addition, the TMF became an international center for veterinary and dairy professional education. Many intensive short courses, hands-on wet labs, and tours were held at the TMF. The TMF became an demonstration

site for improved management of the transition cow, and its layout and management systems were copied worldwide. The TMF served the college's needs very well for nearly a decade and beyond.

DAVIS FAMILY DAIRIES AFFILIATES WITH CVM IN 2007

In September 2007, the college and Davis Family Dairies announced an affiliation to operate a commercial, educational and demonstration dairy facility in New Sweden Township in Nicollet County. This new dairy facility would house more than 4,000 animals, and serve as a birthing site for more than 6,000 calves per year, milk 3,000 cows on site and provide management support to another 3,000 cows at the existing Northern Plains Dairy. It included dormitory facilities, classrooms and teaching laboratories.

DAIRY EDUCATION CENTER AT NEW SWEDEN DAIRY IN 2009

The next major step for the dairy program came in 2009. Building on the successful model of TMF, the college entered into another private/public partnership that involved an academic center directly within a large dairy. In partnership with the Davis Family Dairies in south-central Minnesota, the college opened the Dairy Education Center (DEC) at New Sweden Dairy near St. Peter.

The center is housed under the same roof as the large dairy at New Sweden. Like the TMF, the facility provides for clinical training of senior veterinary students, but at a distinctly different scale. The academic facilities include 15,000 square feet of space, including a dormitory with 26 beds, a kitchen and commons area, and laundry facilities. There are surgery facilities, a large research lab area, clinical teaching areas, and three classrooms, the largest of which can seat 60 at tables,

The dairy itself produces more than 10,000 calves per year. Cows are housed on three separate dairies that each milk approximately 3,000 cows. This facility is now the nation's premier facility for dairy veterinary education and dairy professional education and serves as an applied research facility and a highly visible site for the promotion of modern dairy farming and milk production. It provides a fruitful site for applied and clinical research, with particularly strong opportunities for work in transition cow management and health, mastitis, reproduction, and calf rearing and health. With more than 4,500 adult cows at the New Sweden Dairy, 10,000 calvings and 6,000 heifer calves born per year, there are significant opportunities for applied studies to gather relevant data.

The mission of the Dairy Education Center also involves educating professionals such as nutritionists and dairy managers, and providing opportunities for research in dairy science and veterinary medicine. In 2010, the dairy program was designated by the United States Department of Agriculture as the first National Center for Dairy Veterinary Education. With funding from a large federal grant, the college hosted two cohorts of senior veterinary students from five colleges of veterinary medicine for eight-week courses in dairy production medicine. These courses involved outside speakers, visits to other dairies in the area, and web-based support systems. Continuing education opportunities have also been offered to practicing veterinarians and other professionals serving the dairy industry. More than a thousand veterinarians participated in continuing education from 2009 to 2015. The Dairy Education Center is unique in the nation in its ability to host such programs while providing housing, classrooms, and laboratories. The center has also provided a one -week training session for high school agricultural educators from across the country.

In addition, the DEC often serves as a one-day training site for veterinary students in other aspects of dairy management: feeding management, milk quality, cow comfort, lameness and hoof care. In 2012, 2014, and 2015, the Dairy Education Center hosted a weekend dairy herd evaluation and consulting skills competition involving students from several veterinary colleges.

For students interested in dairy and beef production, the College of Veterinary Medicine now offers what is arguably the most robust educational program of any veterinary college in North America.

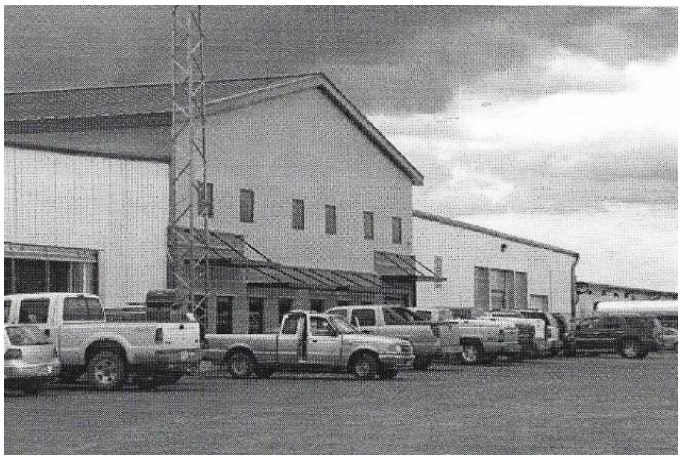
DAIRY PRODUCTION MEDICINE ROTATION

Dr. John Fetrow

In addition to an eight week dairy production medicine rotation, students can take any or all the following two-week senior rotations: clinical training; reproduction; food animal disease and diagnostics; bovine surgery; feedlot ration; cow-calf training; large animal medicine; large animal surgery; and a range of other food animal rotations in swine, poultry, sheep, goats and camelids.
Dr. John Fetrow was the dairy cattle faculty specialist for many years and designed the new dairy education program at the College of Veterinary Medicine.

New Sweden Dairy Entrance

Classroom



Student Facilities Building

Kitchen and Commons Area

Dormitory Room

74 Stall Rotary Milk Parlor

Chapter 7
Swine Production Program

When the School of Veterinary Medicine was founded in 1947, Dr. H.C.H. Kernkamp had become nationally renowned for his knowledge of swine diseases, and had conducted research on several diseases, including hog cholera, swine influenza, swine brucellosis, and infectious enteritis.
Dr. Kernkamp helped start the college by teaching gross anatomy. In 1953 he was appointed acting assistant dean but continued to conduct some research on swine diseases. The Department of Veterinary Medicine had the responsibility of teaching swine medicine. Dr. Dale Sorenson taught swine medicine for several years and followed Dr. Kernkamp in conducting some of the swine disease research. Dr. Ray Solac was the only person in extension and provided occasional programs on swine production.

In the 70s the college decided to develop a swine production and medicine program. In 1974 Dr. Allen D. Leman, a new University of Minnesota Extension veterinarian, and Dr. Jim Hanson, director of the College of Veterinary Medicine's continuing education program, initiated a conference to present new information and discuss issues important to the swine industry.
Dr. Leman was recruited into the Department of Veterinary Medicine in 1977. He understood how a university could influence practitioners and empower them to be leaders for the swine industry. He also had an appointment in Extension to provide a much larger and active program in swine production. The plan was to increase the number of faculty with expertise in swine diseases, to develop a swine research program, a swine production clinical teaching program, and a swine production extension program. It took the college several years to develop the program. This conference for Minnesota practitioners began in a small lecture hall on the St. Paul Campus and has evolved into a multisession, international meeting.

Dr. Leman became an international authority in swine medicine and production. He conducted research on some of the major diseases and production problems and published more than a hundred papers. He also edited or wrote six textbooks on swine diseases and production. In 1981 he was the principal author and helped develop the International Pigletter publication on swine management.

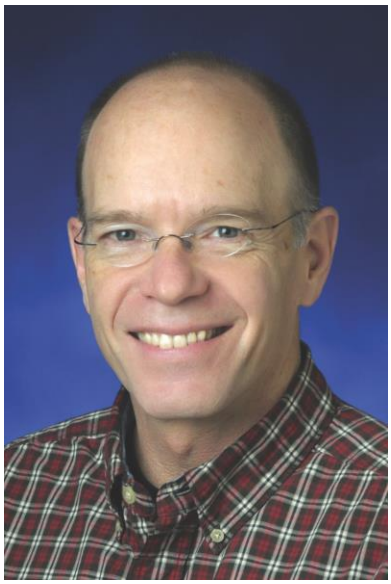
Dr. Harvey Hilley was the first graduate student. A D.V.M. from Texas A&M, he was a large animal intern at Minnesota from 1975 to 1976 and a swine medicine resident from 1976 to 1981, He received his Ph.D. degree from Minnesota in 1981 and joined the faculty in that year. Dr. Leman was the major advisor to 22 graduate students and as a result, some of the graduates of this program became the leading swine veterinary practitioners or researchers in the world today. Three early graduate students were Rolf Larson, John Hurtgen and Ross Cutler.

In addition, Dr. Leman gave more than 700 extension lectures to swine producers in Minnesota and around the world. In 1986, he left the University of Minnesota and in 1988 became a partner in Swine Graphic Enterprises, a swine production management company, in Webster City, Iowa. He continued, however, to serve as an adjunct professor at the College of Veterinary Medicine.

Leman died in 1992 while attending an international symposium on swine veterinary medicine. To honor him, the Leman Chair in Swine Health and Productivity was established in 1995. Dr. Thomas Blaha, an international expert in swine diseases and production from Germany was the first person to be appointed to the Chair, and he held the Chair from 1995 to 2003. Dr. Peter Davies, an international expert in swine epidemiology was appointed to the

Dr. Peter Davies

Dr. Al Leman



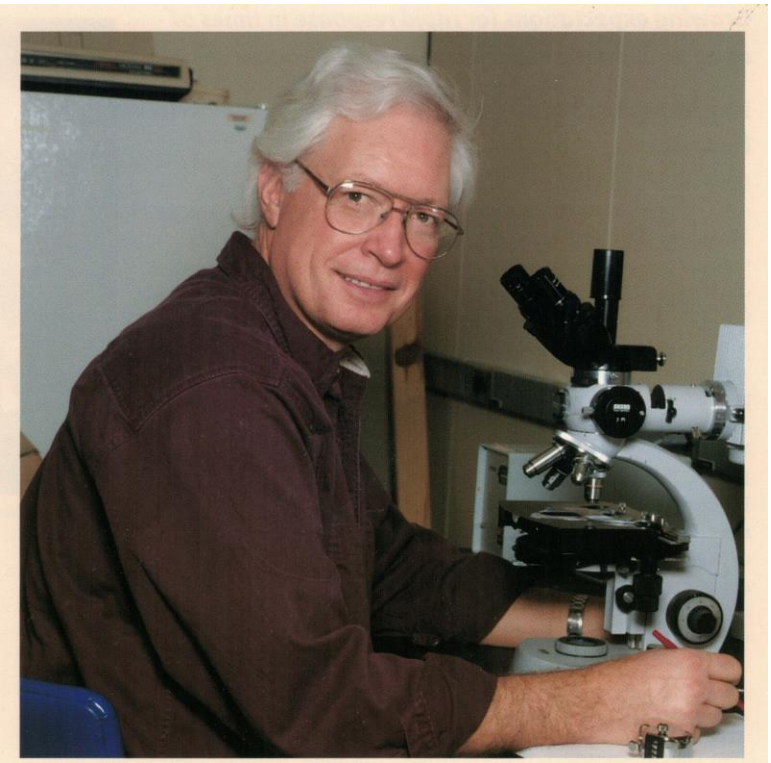
Dr. Marrison

Dr. Blaha

Dr. Torremorell Montserrat

Chair in 2003. Dr. Davies remained in the college in the swine program as professor in the Department of Veterinary Population Medicine.
Dr. Hans Soo Joo, D.V.M., Ph.D., joined the faculty in 1981 and was primarily committed to swine disease research.
Dr. Carlos Pijoan, D.V.M., Ph.D., joined the faculty group in 1983. Dr. Pijoan was recognized internationally for his work in swine respiratory disease and the influence of swine production systems on the dynamics of microorganisms such as Porcine Reproductive and Respiratory Syndrome virus, Hemophilus parasuis,

Streptococcus suis, and Mycoplasma hyopneumoniae. He was the founder and director of the University's Swine Disease Eradication Center. Dr. Pijoan died in January, 2007.


Carlos Pijoan, Director, Swine Disease Eradication Center

Dr. Pijoan

Dr. Thomas Stein was a graduate student who received his Ph.D. in 1985. In the same year the first version of PigChamp was released, a computerized health and management program for producers developed largely by Stein. The system records individual histories on pigs in each herd, including information on farrowing, weaning, breeding, movements and sales. Data is used to generate whole farm reports and diagnostic reports designed to reveal factors limiting productivity. PigChamp's larger purpose was to create a research database to identify constraints on production, to determine association between health and productivity, and to provide information against which to test hypotheses. Data on more than four million sow production cycles in the first few years were on file and became the world's largest swine database.

Dr. William Marsh joined the swine group in 1985 and made many research contributions on major swine diseases.

Dr. Robert Morrison joined the faculty in the swine program in 1986 and developed into a swine disease expert. He published more than 60 refereed articles and made more than 300 presentations in conferences and workshops. He conducted research on many of the major diseases of swine, including pseudorabies, encephalomyocarditis, swine infertility and swine respiratory syndrome (SIRS) and porcine reproductive and respiratory syndrome (PRRS).

Drs. Bob Morrison, Scott Dee, and others led a regional effort to eradicate porcine respiratory and reproductive syndrome (PRRS) and Porcine Epidemic Disease Virus (PEDv), the most devastating diseases confronting the swine industry. Swine Health Monitoring Project (SHMP) was implemented in 2011 to encourage confidential but cooperative sharing information to keep neighboring herds safe.

Dr. Morrison coordinated the internationally-attended Allen D. Leman Swine Conference and in 2016 remembered for his career and purposeful "integrity" with the Master of Pork Industry Award by the National Hog Farmer.

Dr. Morrison was a gifted researcher widely admired for his work to eradicate diseases infecting swine herds. Morrison was killed in a 2017 car collision in the Czech Republic while traveling to an international conference on swine health management in Prague. In honor of Dr. Morrison's legacy the Morrison Swine Innovator Prize is

offered to DVM students at the annual Allen D. Leman Swine Conference to encourage the next generation of leaders.

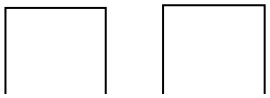
Dr. Gary Dial joined the faculty in the swine group in 1989. He made many excellent research contributions in the 90s.

Dr. Scott Dee joined the swine program in 1999 and has become an internationally recognized disease expert. He was a professor at CVM for 12 years which included chairing the Veterinary School Admissions Committee during the revision to include behavioral competencies. He is the author of twenty book chapters and more than a hundred peer reviewed articles. He was honored with the Pork Industry Distinguished Service Award in 2022.

Dr. Montserrat Torremorell joined the college as the Leman Chair in 2009. Torremorell has an extensive background in swine health, research and production systems. She is the author of more than 32 peer reviewed journal articles and more than a hundred abstracts in conference proceedings. She enjoys teaching students, graduate students, veterinarians and producers the science of disease control. She was honored as the first recipient of the American Association of Swine Veterinarians '(AASV) Outstanding Swine Academic of the Year award in 2022.

LEMAN SWINE CONFERENCE

The swine faculty at the University of Minnesota has developed into a premier group among all the colleges of veterinary medicine in the United States. Its leadership has been widely recognized, and the popularity of the annual Leman Swine Conference confirms this. This annual conference was started in 1974 by Dr. Allen D. Leman, a new University of Minnesota Extension veterinarian, and Dr. Jim Hanson, continuing education director of the College of Veterinary Medicine. The first Leman China Swine Conference was held in October, 2012 in Xian, China.



Hans Soo Joo, Tom Stein

Chapter 8
Avian Disease Research Program and Research Center

Front: Ben Pomeroy, Rose Finnegan, Vaithianathan Sivanandan
Back: John Newman, Mary Walser, Dave Halverson, Jagdev Sharma, Kakambi Nagaraja

The avian research program was initiated in the 1940s by Dr. Benjamin S. Pomeroy (1911 – 2004), and was primarily conducted by graduate students with veterinary degrees working toward their Ph.D. degrees. Dr. Harvey Hoyt, for example, was conducting research on infectious sinusitis, and Dr. Jay Sautter was conducting research on histomoniasis, both in turkeys. The poultry industry was able to get state funds to inaugurate a Salmonella pullorum and Salmonella gallinarum eradication effort, and this became a part of the research program. When Newcastle Disease became a nationwide problem, the U.S. Department of Agriculture gave funds to develop a diagnostic test and conduct regional research. The research was largely being done from the diagnostic laboratory in the College of Agriculture. In 1947 the avian research program moved to the Department of Veterinary Microbiology in the new School of Veterinary Medicine.

After the school was established, state and federal funding for poultry research dwindled. In 1975 an effort was made to obtain additional funding from the state, and a bill was introduced in the Minnesota legislature to provide $375,000 for an Avian Disease Research Center. While the bill failed, it did result in a $90,000 appropriation to the College for avian disease research. In addition, director William Hueg of the Agricultural Experiment Station committed $50,000 per year to whatever the legislature appropriated. This provided funds to expand the faculty.

Dr. Goyal

Dr. Mary Walser, a pathologist, and Dr. John Newman, a microbiologist, were hired. Later, additional funds from several sources were obtained, and Dr. Dave Halvorson was hired to provide expertise in poultry extension and research. The research staff was also expanded with the addition of Drs. Kakambi Nagaraja and Vaithianathan Sivanandan, and support was provided by physiologists Dr. Harold Dzuik, Dr. Gary Duke and Dr. Pat Redig.

The Avian Research Program under Dr. Pomeroy's leadership was quite broad in scope and primarily focused on the important disease problems of turkeys. These included mycoplasma infections, avian influenza, salmonellosis, fowl cholera, colibacillosis, and blue comb disease. Research at the center contributed greatly to the control of these diseases, and the state saw a ten percent reduction in mortality losses. Minnesota turkey production expanded, and the state became the primary turkey producer in the nation.

Dr. Pomeroy served as the director of the Avian Disease Research Center until his retirement in 1981. Dr. Dave Halvorson succeeded Pomeroy and served as director until 1996.

AVIAN INFLUENZA

In 1970 avian influenza, a new respiratory disease, was diagnosed in winter confinement flocks. While mortality was limited, there was considerable market loss due to airsacculitis condemnation. The introduction of this disease was attributed to fall duck migration, and became an annual problem for turkey producers in Minnesota. Wild geese and ducks nest and hatch in the Canadian wetlands. Carrying infectious agents, they migrate south across the U.S. into the lower states and Mexico in summer and fall. They spend time in Minnesota on their way and like to share the feed on domestic turkey ranges.

U of MN researchers determined that this was the vector infecting our range turkeys. Dr. Pomeroy's researchers utilized traps on sloughs near turkey farms to catch wild ducks and identify the viral infections that the domestic

Dr. Jagdev Sharma

turkeys picked up. In the mid-1990s, producers built buildings and moved their birds indoors.

The Avian Research Center and the poultry industry developed a voluntary control program which monitored every turkey flock at processing time. This resulted in winter production free of the disease each year, and was thought to prevent the development of the highly pathogenic strain H5N2 that had occurred in other countries and in Pennsylvania in 1983. However, Minnesota did not escape the epidemic that worked its way across the United

Dr. Cardona

States in 2014–2015, causing severe losses. Minnesota growers lost more than 9 million chickens and turkeys due to both direct mortality and euthanasia to prevent the disease from spreading. The value of turkey and laying hen losses was estimated at $1.6 billion. Eighteen trading partners banned the import of U.S. poultry products, and 38 trading partners imposed partial, or regional, bans. The epidemic has been declared the largest disease loss of livestock in the history of the United States, and there were additional costs to the industry from new practices to prevent the influenza's spread.

In 1997 another respiratory disease caused by avian pneumovirus begin to proliferate. Dr. Dave Halvorson worked with the industry and market testing was introduced. A turkey vaccine developed by the college's Dr. Sagar Goyal and his research team was approved by the U.S. Department of Agriculture in 2003. The vaccine helped save Minnesota growers millions of dollars each year.

Another significant achievement was the completion of the turkey genome sequence in which the college's Dr. Kent Reed participated as part of an international consortium of researchers. The genome sequence yielded knowledge of the genes that are important in meat yield and quality, health and disease resistance, fertility, and reproduction.

POMEROY CHAIR IN AVIAN HEALTH

The poultry industry in 1985 funded the Pomeroy Chair in Avian Health in honor of Professor Pomeroy. The college's avian research program was expanded in 1998 with the creation of an endowed chair in avian health – the first endowed chair in the College of Veterinary Medicine. The only endowed poultry chair in the U.S., it is associated with the College of Agricultural, Food, and Environmental Sciences and the College of Veterinary Medicine.

The chair was named to honor the research, teaching and service contributions made by Pomeroy during the past 45 years. Dr. Pomeroy's accomplishments include work that helped control salmonella, mycoplasma, and other potentially devastating infections that once threatened the poultry industry. Support for this chair has come from many friends in the agricultural industry, including many poultry producers.

The chair was first filled in 1988 by Dr. Jagdev Sharma, who for 17 years had been a senior veterinary research scientist in the U.S. Department of Agriculture's Regional Poultry Research Laboratory at East Lansing, Michigan, and had been a member of a research team that worked successfully on the immunopathology and prevention of Marek's disease, one of the great scourges of the poultry industry. His in-ovo vaccine delivery system benefitted poultry growers worldwide. Dr. Sharma retired in 2009 and was replaced in 2010 by Dr. Carol Cardona, an expert in avian influenza.

MID-CENTRAL RESEARCH AND OUTREACH CENTER FACILITY IN WILLMAR

Dr. Cardona also has interest in zoonoses, infectious diseases that are transmitted between animals and humans, and the role that poultry play in human health and well-being, especially in developing countries. She serves as codirector/coprincipal investigator of the Minnesota Center of Excellence for Influenza Research and Surveillance at the University, and is in charge of the poultry laboratory research facility in the Mid-Central Research and Outreach Center facility in Willmar. She collaborates with poultry practitioners in Minnesota, other scientists and veterinarians, and the Minnesota Board of Animal Health. Her research and work with the industry played an important role in the control of the devastating 2015 epidemic of highly pathogenic avian influenza.

Chapter 9
The Raptor Center[13]

Dr. Gary Duke and Bald Eagle

RAPTOR RESEARCH AND REHABILITATION PROGRAM

The Raptor Center took root in 1974 as the Raptor Research and Rehabilitation Program in Haecker Hall on the St. Paul campus. In 1975 the program began receiving an annual grant of $5,000 from the U.S. Fish and Wildlife Service to support its work with endangered species such as the bald eagle and peregrine falcon.

In the early 1970s faculty member Dr. Gary Duke was conducting research on the digestive efficiency of grain-eating turkeys. When one of his veterinary students brought him four baby great horned owls, Duke saw an opportunity to expand his research to include avian meat-eaters. He obtained additional owls for his study through the Minnesota Department of Natural Resources.

Patrick Redig, a sophomore veterinary student and an avid falconer, offered to care for the resident owls as well as other birds. He began to repair their injuries and return them to the wild. He would eventually complete a Ph.D. in avian physiology under Duke, and he pioneered orthopedic and anesthetic techniques used by avian veterinarians today. He also began using live birds of prey to educate the public about raptor behavior, habitat, and threats to their survival.

MIDWEST PEREGRINE FALCON RESTORATION PROJECT

In 1981, there were two known nesting pairs of peregrine falcons on the Midwestern North American continent, southeastern Manitoba, and the Lake Superior basin of Ontario. In 1982 Pat Redig of The Raptor Center and Bud Tordoff of the University of Minnesota's Bell Museum of Natural History launched the Midwest Peregrine Falcon Restoration Project. In cooperation with the Nature Conservancy and the falconry community, Redig and Tordoff obtained peregrine chicks that were bred in captivity and released into appropriate nesting sites on buildings, smokestacks, bridges, and cliffs. As of August 2003, there are 144 nesting pairs in 9 Midwestern states and adjoining Canadian provinces.

The peregrine falcon was removed from the Endangered Species List in 1999, a milestone in endangered species management success, contributed in large part by the work done by TRC and Tordoff in re-establishing the peregrine in the Midwestern states.

In 2008 Dr. Redig named Chair of Midwest Peregrine Society, responsible for continuing monitoring of the peregrine falcon population in the Midwest.

THE RAPTOR CENTER NEW FACILITY FUNDED BY DON AND LOUISE GABBERT

In 1988, TRC moved into a new facility constructed with funds donated by Don and Louise Gabbert of Minneapolis. The $2.5 million, 21,000 square foot facility is the only one of its kind in the world. Its educational programs reach more than 200,000 people annually.

In 2016 Minnesota Construction Association awarded Graham Construction the 2016 Award of Excellence for Renovation, Expansion, Or Tenant Improvement Project for the education and rehabilitation bird housing at TRC. The renovated visitor center opens to the public in 2018.

[13] *Many subsections of this chapter are taken directly from the website https://raptor.umn.edu/about-us/our-history but rearranged for clarity.*

PUF RAPTOR PROFESSORSHIP

Dr. Redig

In 1990 TRC established a three-year veterinary residency program in raptor medicine. It is the only such program in the world. The PUF Raptor Professorship endowment was established with gifts of more than $25,000 from Katherine B. Andersen, Sarah J. Andersen, Bruce C. Dayton, the Phoebe W. Haas Charitable Trust, Mardag Foundation, Solly Robins, and the Donald Weesner Estate. Original gifts totaled more than $258,000 and have grown to over $612,000.

LEAD POISONING IMPACT

In 1991 lead was banned for hunting waterfowl owing to the research by Dr. Redig that showed a link between lead poisoning in eagles admitted to TRC and the ingestion of spent shot in waterfowl carcasses. The actual ban came about because of a lawsuit by the National Wildlife Federation for which Redig served as an advisor to the legal team.

In 1993 Dr. Redig was appointed to the California Condor Recovery Team, based out of the U.S. Fish and Wildlife Service in Sacramento, CA. In 1985, the California condor population had been reduced to 26 birds, of which only 9 remained in the wild. Birds were brought into captivity and were bred and managed by the San Diego Wild Animal Park and Los Angeles Zoo. Due to the continued impact of lead poisoning, re-entry to the wild was challenging. On April 11, 2002, for the first time in 18 years, a California condor egg laid in the wild was hatched in California's Ventura County.

In 1999 The Raptor Center engaged in a study of lead poisoning in bald eagles along the Mississippi River. Dr. Redig had initiated a program of testing bald eagles for lead in 1976 such that every eagle admitted was evaluated. Over the years, the data painted a very clear picture of significant morbidity and mortality among eagles from lead poisoning, the source of which was spent ammunition in killed game and residues left in the field. The thrust of this effort was to gain a sense of the prevalence of exposure to eagles to lead at the population level. The results were astonishing. 80% of eagles trapped and assessed had elevated lead residues in their blood. This added considerable momentum to efforts that continue to this day at TRC to reduce the exposure of eagles to lead.

In 2003 Dr. Redig named chair of the Lead Mitigation subcommittee for the California Condor Recovery Team. He was invited by the U.S. Fish and Wildlife Service to head up an initiative to mitigate lead poisoning in California condors in southern California and Arizona. In addition to the California Condor Recovery Team, project partners included the California Fish and Game Department, National Rifle Association, National Shooting Sports, Safari International, and Wildlife Management Institute.

On November 8, 2006, The Raptor Center admitted a young, wild hatched California condor for treatment of a wing fracture; the bird was successfully released at the Grand Canyon after treatment.

In 2007 The bald eagle was removed from the Endangered Species List, another milestone in endangered species management accomplished in no small part by the 30+ years of work in rehabilitation, informing of public policy, public education, and research conducted by TRC.

In 2010 Dr. Luis Cruz completed his residency. His research projects included investigation of lead exposure from ammunition sources in bald eagles and stress hormone analysis in great-horned owls. With a grant from the Association of Avian Veterinarians, TRC conducted a study of the use of MRI to localize brain lesions from lead toxicity in bald eagles.

In 2011 The Clinical Wildlife Health Initiative completed a study looking at the prevalence of lead toxicity in five species of birds.

RAPTOR BIOMEDICINE II & III PUBLISHED

In 1993 The University of Minnesota Press published ***Raptor Biomedicine II***, a book for which Dr. Redig was senior editor. Resulting from an international symposium held in Minneapolis in 1988, the book contained contributions from raptor veterinarians and biologists in 10 countries, from the United States to the United Arab Emirates. In 1998 ***Raptor Biomedicine III*** was published as a 10-year successor to Raptor Biomedicine II. Redig was an editor and the organizer of the symposium held in South Africa from which the papers published in this book were derived.

RAPTOR REHABILITATION ENDOWMENT

In order to support TRC's clinical work, The Raptor Rehabilitation Endowment was established in 1994 with gifts more than $25,000 from Katherine B. Andersen, Harriet S. Lykken, and an anonymous donor. This endowment has grown to $955,000 in 2020.

TIE-IN FIXATOR REVOLUTIONIZES ORTHOPEDIC MANAGEMENT

In 1995 Dr. Redig developed the tie-in fixator, a combination of internally and externally applied linked devices that stabilize fractures during healing. This device revolutionized orthopedic management of fractures in birds and is now used by veterinarians worldwide..

In 2003 Dr. Arnaud Van Wetter, a veterinary resident from Belgium, completed his clinical residency and graduate program. His research involved analyzing the elements and configuration of the tie-in fixator for fracture repair and optimizing the hardware used in this device.

In 2006 The University of Minnesota honors Dr. Redig for his pioneering work in avian orthopedics with the inclusion of the fixator that he developed on the Wall of Discovery, located along the U of MN Scholar's Walk.

SATELLITE TELEMETRY OBSERVATIONS

In 1995 a field study was begun when The Raptor Center began using satellite telemetry to monitor the migratory routes, stopover sites, and wintering grounds of ospreys, bald eagles, and Swainson's hawks nesting in North America. This educational tool integrated into a classroom and Web-based environmental education program called Highway to the Tropics. This research resulted in Audubon adding several locations to its Important Bird Areas listing.

CARE AND MANAGEMENT OF CAPTIVE RAPTORS

In 1981 TRC compiled the first edition of **Medical Management of Birds of Prey**. Revised in 1993, the spiral bound book was the first of its kind to help aspiring veterinarians with basic raptor care.[14]

In 1994 In collaboration with the Science Museum of Minnesota, The Raptor Center produced "Hunters of the Sky," a 5,000-square-foot exhibit that provides a closer look at eagles, hawks, falcons, owls, and vultures and challenges visitors to confront their values and choices that threaten these extraordinary creatures. This award-winning project was funded through a grant from the National Science Foundation and the National Endowment for the Humanities; it toured for over 10 years before being permanently installed as an exhibit in Amarillo, TX.

Captive raptors are permanently disabled raptors held in permitted educational facilities. In 1996 TRC published a booklet titled **Care and Management of Captive Raptors**. In 2018 an updated version titled **Raptors in Captivity: A guide to care and management** was authored again by Lori Arent MS. In 2007, the U.S. Fish and Wildlife Service decided and today continues to recommend this 'bible 'as the standard of care and keeping for all captive raptors.

In 2004 The Raptor Center's environmental education program, begun by Dr. Redig, extended its reach through a partnership with the AmeriCorps Promise Fellow program. Grants supporting two Promise Fellows allowed TRC to connect with underserved children, create a youth service-learning program and expand volunteer roles.

In 2006 The Raptor Center's professional education is expanded to include raptor care professionals and veterinary technicians. Based on 30 years of experience and two books, an annual workshop on the care and management of captive raptors is begun for raptor professionals. Also, wet lab and on-line classes for veterinary technicians in avian and wildlife medicine are begun.

In 2009 Spanish language program developed to expand reach of TRC's education programming and an upgrade to digital radiography equipment thanks to a challenge grant from the Katherine B Andersen Fund of the St. Paul Foundation.

In 2018 Partners for Wildlife (P4W), a new program working with wildlife rehabilitators and veterinarians, created and partnered with TRC. Internships, grants, outreach, and education all provided to vets and wildlife rehabilitators through P4W.

[14] *MVHM email from Lori Arent M.S. of TRC*

RESIDENCY AND GRADUATE PROGRAM BENCHMARKS

IN 1997 Dr. Elizabeth Stone completed her residency and graduate program with Dr. Redig as her faculty advisor. Her research on reproductive behavior and endocrinology of cockatiels improved understanding of reproductive behavior and mate choice in companion birds leading to improved methods of managing behavioral problems.
In 1998 Dr. Jannette Ackermann completed her residency and graduate program under Redig tutelage. Her research related to surgical repair of elbow luxation's in raptors led to medical and surgical protocols for effectively treating this type of injury in birds.
In 2001 Dr. Richard Jones, from Wales, completed his residency and graduate program with Redig as his faculty advisor. His graduate work focused on the development of a surgical process to perform endoscopy guided vasectomy in immature birds. This process is now utilized in hybrid falcons to prevent reproduction and in young male cockatiels to prevent behavior problems.
In 2002 Dr. Jalila Abu, from Malaysia, completed her residency and PhD with Redig as her faculty advisor. Her research on the use of demineralized bone matrix in avian orthopedics has contributed to a growing body of knowledge used in both human and veterinary fracture repairs.
In 2010 Dr. Luis Cruz completed his residency, with his research including investigation of lead exposure from ammunition sources in bald eagles and stress hormone analysis in great-horned owls.

WEST NILE VACCINE DEVELOPMENT

In 2002 West Nile virus swept across the Midwest, killing wild and captive birds in significant numbers, including many endangered birds managed in captivity. In collaboration with collaborators at the University of Georgia and Louisiana State University, Dr. Redig began an effort to test and license a recombinant-DNA vaccine product developed by the Centers for Disease Control (CDC), which has already proved effective in test studies.
In 2004 Dr. Miguel Sagesse, a veterinary resident from Argentina, completed his master's thesis on West Nile virus vaccine and transfer of maternal antibody.

PATRICK T. REDIG PROFESSORSHIP

In 1999 a substantial gift from longtime supporters Doug and Wendy Dayton established the Patrick T. Redig Professorship in Raptor Medicine and Surgery at the University of Minnesota College of Veterinary Medicine.

CAREER RECOGNITION

In 2002 Dr. Redig received the Conservation Award from the Association of Avian Veterinarians for lifelong dedication to improving the welfare of the avian population.
In 2007 Dr. Redig retired as Director of The Raptor Center to refocus his efforts on conservation and ecology. The University of Minnesota College of Veterinary Medicine presented Redig an award for excellence in service.
In 2008 The Minnesota Veterinary Medical Association awards Dr. Redig its Outstanding Faculty Award for Service to the profession.
In 2008 The Duke Lecture Series is inaugurated - lectureship endowed by William and Betty Holleman in memory of Dr. Gary Duke.
In 2011 Gail Buhl, education program manager, Received the Roger Tory Peterson Award for Excellence in Interpretation. The Morris Animal Foundation awarded TRC a grant to assess the impacts of crude oil on reproduction of migratory birds in the wake of the Deepwater Horizon oil spill.
In 2015 Dr. Redig was given the T.J. Lafeber Avian Practitioner of the Year Award at the Association of Avian Veterinarians conference for advancing the quality of health care for companion birds.

PONDER RECEIVES ASSOCIATION OF AVIAN VETERINARIANS AWARD FOR OUTSTANDING SERVICE AND COMMITMENT

Dr. Julia Ponder DVM, MPH was named Executive Director of TRC in 2007.
2010 Dr. Julia Ponder received award from Association of Avian Veterinarians for outstanding service and commitment to advancing and promoting avian medicine and stewardship.

GALAPAGOS ISLAND HAWKS

Dr. Ponder

The Raptor Center worked on a project to protect Galapagos hawks on the Galapagos Islands. The hawks, which are endemic to the Galapagos Islands are being brought into captivity during an effort to eradicate invasive rats from 10 small islands in the Galapagos Archipelago. The center's role is to provide consultative input on the project, veterinary expertise with raptors, and care and management of the hawks during their time in captivity. Dr. Julia Ponder, executive director, spent 6 weeks in the Galapagos actively managing the birds and providing veterinary care.
2010/2011 Galapagos National Park, the Charles Darwin Foundation, and Island Conservation asked TRC to work with them to design and implement a mitigation plan to protect Galapagos hawks during a project to eradicate invasive rats on ten small islands in Galapagos.

WILDLIFE HEALTH INITIATIVE

In 2008 Funded by grant from LCCMR (Legislative Citizens Commission on Minnesota Resources}, TRC developed tools for monitoring health data from wildlife. Building on this work the Clinical Wildlife Health Initiative was launched in 2010. The long-term goal of this initiative is to create a national strategy for standardized collection of data based on defined medical terminology collected by a network of professionals in wildlife clinics. Public Health and Policy benefit by broadly including wildlife as part of the One Health Initiative. [15]
Dr. Ponder took on a new role in the CVM leadership with a transition from director in 2019. She will be remembered for her strong community connections that strengthened fundraising and communications. With amazing donor support her shared vision of a permanently funded raptor-oriented chair was established in 2019. She also continued her involvement with TRC's Partners in Wildlife.

The Raptor Center's third director starting on January 1, 2021 and Patrick T. Redig Endowed Faculty Chair in Raptor and Ecosystem Health is Victoria Hall, DVM, MS, DACVPM. Her wide experience in public health includes her recent work as Veterinary Epidemiologist for the National Zoo and as a Public Health Officer for the Smithsonian Institution's COVID-19 response. She has previously responded to outbreaks involving multi-drug resistant tuberculosis, measles virus, and Zika virus as the CDC Epidemic Intelligence Service Officer. TRC continues to expand its reach internationally by addressing complex health challenges.

[15] *https://raptor.umn.edu/about-us/our-research/clinical-wildlife-health-initiative*

Chapter 10
Equine Center Program

In 2005, the University Board of Regents approved plans for a $14 million equine treatment and research center. The facility was built in the northeast section of St. Paul campus. The college decided to expand its equine treatment and research program and the Equine Center would be an important part of this expansion. It was noted that Minnesota ranks among the top ten states in horse population and the equine industry contributes almost $1 billion annually to the state's economy.

LEATHERDALE EQUINE CENTER

In October 2007, The Leatherdale Equine Center was opened, named in honor of Louise and Doug Leatherdale, who made a generous lead gift to the University. Tad and Cindy Piper made the lead gift for The Piper Performance Clinic, a performance medicine and reproductive clinic in the facility. The Equine Center included computerized gait analysis and high-speed cameras to test for lameness, an aqua treadmill used in rehabilitation, a state-of-the-art reproduction wing, and a high-speed treadmill that allowed every breath and heartbeat to be monitored up to 30 mph.

Dr. Mickelson

Dr. Valberg

The Equine Center is located four blocks north of the main College of Veterinary Medicine buildings.
The center was designed by Rafferty, Rafferty, Tollefson Architects of St. Paul and opened in October, 2007. Dr. Stephanie Valberg was appointed director, and faculty were recruited to expand the existing staff. These included Dr. Nicolas Ernst, a board-certified equine surgeon; Dr. Troy Trumble, an internationally-recognized expert in equine lameness; and Dr. Nicole Scotty, a specialist in equine ophthalmology. In 2009 Dr. Anna Firshman joined the faculty as a medicine specialist. In 2014 Dr. Christy Ward joined the faculty as a medicine specialist, and in 2016 Dr. Alex Bianco joined as a medicine specialist.
New technologies at the center included computerized gait analysis and high-speed cameras to evaluate lameness, an aqua treadmill for rehabilitation, a state-of-the-art reproduction wing, and a high-speed treadmill that allows the horses to gallop at up to 30 mph while respiration and heartbeat are monitored.
The mission of the Equine Center was that its serve as a comprehensive source of equine expertise and services for the U of MN faculty, veterinarians and equine community. It represents an overarching program that brings together clinical services, equine research, veterinary outreach and equine extension. The number of equine patients more than doubled after the Equine Center was opened. In 2006–07 about 1,200 equine patients were seen; in 2015–16 nearly 4,100 were seen.

EQUINE CONSORTIUM FOR GENETIC RESEARCH

At the opening ceremony of the Center, Dr. Patricia Olson, president and CEO of the Morris Animal Foundation announced that the organization had selected the College as the recipient of $5 million in funding for the Equine Consortium for Genetic Research. This consortium would be led by Dr. Jim Mickelson with the goal of bringing together the world's best researchers in a collaborative effort to improve equine health.

JOURNAL SCIENCE: HORSE GENOME SEQUENCE

Professors Jim Mickelson and Stephanie Valberg were among the authors of "Genome Sequence, Comparative Analysis, and Population Genetics of the Domestic Horse," published in November 6, 2009 issue of the journal Science. The paper was the first published report of the horse genome sequence. Sequencing of the horse genome began in 2006 by international team of scientists who built preliminary maps in the horse genome and began using genomic tools to address health issues in horses. Mickelson and Valberg played important roles in the project, particularly in building the initial map of the horse DNA sequence. These tools could be used to identify disease-causing mutations.

MINNESOTA WEST METRO EQUINE PRACTICE

In 2007 the college developed a specialized equine ambulatory practice, located in Maple Plain, called the University of Minnesota West Metro Equine Practice. This was done to expand the clinical equine teaching program. The practice provides experienced equine clinicians for general ambulatory cases in the Maple Plain area, and is supported by specialists from the Equine Center. The practice has access to advanced imaging and treatment options, including digital radiology, advanced dental equipment, ultrasound, endoscopy, shockwave, and mesotherapy.

PIPER EQUINE HOSPITAL

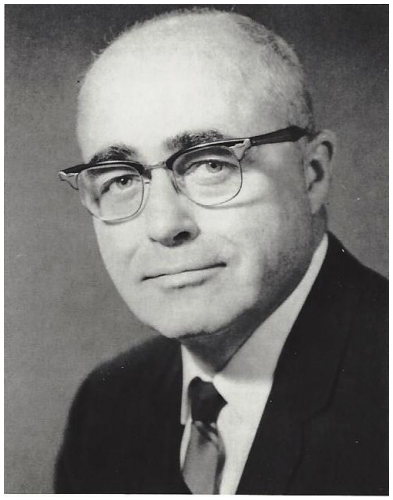
The Piper Equine Hospital contained in the Leatherdale Equine Center provides the region's most comprehensive compassionate care for horses including performance and reproductive medicine. Tad and Cindy Piper made the lead gift for The Piper Performance Hospital. The hospital has diagnostic tools and specialists in orthopedics, respiratory disease, surgery, and rehabilitation. The hospital provides many services and includes cardiology, dermatology, equine sports medicine, internal medicine, medical imaging, ophthalmology, rehabilitation, surgery and theriogenology. It also provides social work services.

BARENSHEER ARENA

The spacious Barensheer Arena located on the north side of the Leatherdale Equine Center is available for diagnosis and exercise. A conference center located on the north side is available for conferences, dining, and seminars.

Chapter 11
Small & Large Animal Medicine Program

When the School of Veterinary Medicine was established, seven divisions of faculty were established to teach the professional program. One of these was the Department of Veterinary Medicine, and this department was divided into two programs: the Division of Large Animal Medicine, which included horses, cattle, swine, sheep and goats, and the Division of Small Animal Medicine, which included dogs, cats, raptors and miscellaneous household pets. Dr. George Mather was head of the Small Animal Division, and Dr. William Pritchard was head of the Large Animal Division.



Dr. Mather

Dr. Don Low

DEPARTMENT OF SMALL ANIMAL MEDICINE AND CLINICS

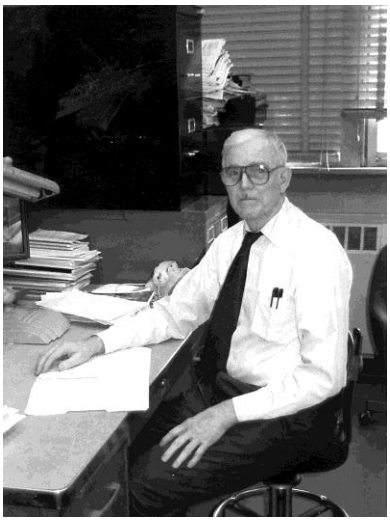
The School was fortunate that two highly trained experts were available to head up the Small Animal Medicine Program: Dr. George Mather and Dr. Donald Low.
Dr. George Mather had several years of private small animal practice experience and had just completed his Ph.D. degree. He eventually was the recipient of the Norden Distinguished Teaching Award from the University and became nationally recognized as an expert in small animal medicine.
Dr. Donald Low received his D.V.M. degree from Kansas State College in 1947 and a Ph.D. from the University of Minnesota in 1956. He first served as instructor of small animal medicine at Minnesota in 1950, joined the faculty of Small Animal Medicine in 1955 and served until 1970. He became head of the Department of Veterinary Hospitals at the University of Minnesota in 1968 and served in that role until 1970. An honor Dr. Low received in 1970 was Veterinarian of the Year of the American Animal Hospital Association. In 1971, Low resigned to become head of the Department of Clinical Sciences at Colorado State University. In 1974 he left Colorado for the University of California-Davis, where he was director of its veterinary medical teaching hospital, associate dean for instruction, and associate dean of public programs. He retired in 1991.
Delmar Finco was a graduate student at the University of Minnesota and joined the faculty in Small Animal Medicine in the 60s and received a Ph.D. He specialized in urology. He resigned in 1970 and accepted an appointment at the University of Georgia.

Drs. Carl Jessen, Vic Perman, Robert Hardy

Carl Osborne replaced Delmar Finco as a member of the Small Animal Medicine faculty. He was an important faculty member in Small Animal Internal Medicine. He received his D.V.M. from Purdue University in 1964 and interned at Minnesota in 1964-65. He entered the graduate program and received a Ph.D. degree in 1970. He became a diplomate in the American College of Veterinary Internal Medicine in 1972. Osborne joined the faculty in the Department of Veterinary Medicine as Assistant Professor in 1970 and was a faculty member in the College for 53 years until his death in 2017. He became a national and international authority on veterinary nephrology and urology. He was the recipient of 46 awards for his outstanding contribution to teaching, research and service. One prestigious award was the University of Minnesota Post baccalaureate, Graduate, and Professional Education teaching award in 2003 awarded by the Senior Vice President for Academic Affairs at the University of Minnesota. Dr. Osborne was an avid researcher. He published 243 papers in refereed journals, authored three textbooks, and wrote 137 book chapters. He was known as the most outstanding scientific authority in veterinary nephritis and urology.

Dr. Robert Hardy was also a key member of the Small Animal Medicine program. He received his D.V.M. at the University of California, Davis in 1969. He served an internship at the Animal Medical Center in New York from 1969 to 1970. He then served a residency there from 1970-71. In 1975, he was awarded a Master's Degree from the University of Minnesota. Dr. Hardy conducted research with a primary interest in the liver, diabetes insipidus, and pancreatic disease. He published 36 publications in referred journals from 1974 to 1996, and published additional articles and chapters in books.

Specialists were added to the medicine program in the early 1970s when Dr. Dale Sorensen, Chair of Clinical Sciences, initiated a plan to expand the clinical training program by adding specialists to the department.



Dr. Donald Barnes

Dr. Kirk Gelatt, a board-certified ophthalmologist, was added to the faculty to teach ophthalmology and to develop a clinical rotation for the clinical teaching programs. Dr. Pat McKeever, a specialist in dermatology was added to the faculty to teach and to provide a clinical rotation in dermatology. Dr. Phil Ogborn, a specialist in cardiology, was added to the faculty to teach cardiology and to develop a clinical rotation in that field. The addition of these three specialists to the professional program proved successful and made the teaching program more comprehensive.

The Small Animal Medicine Program continued to increase, requiring additional faculty. The college was fortunate in recruiting David James Polzin, a well-trained veterinarian who graduated with his D.V.M. from the University of Illinois in 1975, served an internship from 1975-76 at the University of Georgia, and then entered the University of Minnesota Veterinary Residency Program for three years, completing it in 1979. He received his Ph.D. from Minnesota in 1981. An outstanding authority on veterinary nephrology and urology, he authored nine books. He was sought-after for professional education presentations and presented 207 from 1979 to 2011.

The college was fortunate in recruiting Dr. Jody P. Lulich to accept the endowed chair in Nephrology and Urology in 1998. He received his D.V.M. degree from Tuskegee University in Alabama in 1984. He entered the University of Minnesota College of Veterinary Medicine Graduate Degree Program and received his Ph.D. in 1990. He was appointed Assistant Professor in 1990 and served as Professor from 1992. Dr. Lulich has received 16 awards, including the Norden Distinguished Teacher of the Year and the Worlds Small Animal Veterinary Association Excellence in Veterinary Care Award in 2007. His keen interest in research resulted in the publication of 73 papers in refereed journals from 1988 to 2016. He also authored a book and co-authored three books with Dr. Carl Osbourne. He has been very active in reviewing and editing book chapters, conducting 163 editorials.

Others that followed the above clinicians in the Small Animal Program and have also retired from Minnesota include Jane Armstrong, Robert Washabau, Betty Kramala, Sheila Turre, Laura Molgaard, and Anthony Tubis.

DEPARTMENT OF LARGE ANIMAL MEDICINE AND CLINICS

Dr. William Pritchard became the head of the Department of Large Animal and Clinics. He received his D.V.M. from Kansas State College in 1946, his doctorate from the University of Minnesota in 1953, and a Doctor of Jurisprudence from the University of Indiana in 1957, where he was first in his class.

Dr. Pritchard started solving problems for Minnesota early in his career. He helped to identify trichlorethylene as the culprit in what became known as trichlorethylene extracted soybean oil meal toxicity (TCESOM) disease. Feed manufacturers were notified of this problem in cattle and quickly changed their extraction process.

Dr. Pritchard left the University of Minnesota in 1953 and joined the faculty at Purdue University College of Veterinary Medicine and later served as Dean of the University of California Davis School of Veterinary Medicine for twenty years. He was one of several graduates that received a Ph.D. from the University of Minnesota College of Veterinary Medicine that later became a veterinary college dean.

The initial faculty in the Department of Large Animal Medicine included Dr. Robert Merrill, a distinguished large animal practitioner who was put in charge of the University's Veterinary Ambulatory Clinic.

When Dr. Pritchard resigned for a law degree at Purdue, Dr. Harvey Hoyt was appointed Head of the Department of Veterinary Medicine and Clinics in 1953 and did an excellent job. Unfortunately, Dr. Hoyt developed Hodgkin Disease and died in 1965.

Dr. Dale Sorensen was hired in 1953 to assist Dr. Hoyt. Sorensen received his Ph.D. in 1953 from the University of Wisconsin. Prior to his appointment at the University of Minnesota, he was responsible for the herd health of the poultry and other animals of the University of Wisconsin for six years and worked two years for the United Nations Relief and Rehabilitation Administration, providing care for horses shipped across the Atlantic Ocean to Europe to replace the millions of horses lost during World War II.

Dr. Sorensen was appointed head of the Department in 1965, following the loss of Dr. Hoyt, and served until 1980. He remained acting head of the Department until 1972, when he became acting dean of the College of Veterinary Medicine.

At the time Dr. Sorensen was hired, the Medicine Program needed help to expand their graduate program. Dr. Sorensen received his Ph.D. in pathology at Wisconsin and served as advisor for students majoring in pathology. Eight graduate student veterinarians were enlisted. John Anderson, Ralph Farnsworth, L.W. Hanson, Vaugh Larson and Peter Little earned Master's Degrees in Medicine. Wally Wass received a Ph.D. degree and was hired by Iowa State to lead their Veterinary Clinic. Harley Moon and Don Barnes received Ph.D. degrees in Pathology. Dr. Barnes was hired at the University of Minnesota Veterinary Diagnostic Laboratory, and Dr. Moon was hired into the National Animal Disease Laboratory in Ames, Iowa.

Chapter 12
Clinical Teaching Program

THE FIRST AMBULATORY CLINIC

When the school was established Dr. Robert Merrill, a practicing veterinarian, was hired to develop an ambulatory clinic. It included all the animals in the College of Agriculture on the St. Paul campus and the Rosemont research farms. It included dairy cattle, beef cattle, swine, horses, sheep and poultry. A few additional farms were also included in the clinic. A larger ambulatory clinic needed to be developed.

Maple Plain Clinic

MAPLE PLAIN AMBULATORY CLINIC 1956

As the suburbs of the Twin Cities grew, the number of farm animals near the veterinary school decreased and there were fewer animals and less variety in the cases seen by the students on the ambulatory clinic. To bolster training opportunities, the College took over Dr. Fred Gehrman's farm practice in Maple Plain, a small farming community about 20 miles west of Minneapolis. On July 1, 1956 the college leased Dr. Gehrman's house and land with the option to buy. Dr. Gehrman and his staff stayed on to aid in telephone and radio communication, and in consultation.

Dr. Donald W. Johnson was placed in charge of the Maple Plain ambulatory service and the seventh graduating class (1957) was the first to receive ambulatory training in Maple Plain. Students who were rotated through the service would room in the upstairs of the house. At first Dr. Johnson and his wife lived in the downstairs of the house. As the practice grew, Dr. Stanley Held was added to the staff. When he left, Dr. LaRue Johnson took his place and later Dr. Marlin Baker joined the staff.

The venture proved to be very successful and in December 1958, the University purchased the property from Dr. Gehrman. In 1959 a garage, an office, and a small treatment area were built to establish a regular and more efficient veterinary practice. The clinic was very successful in providing training for students interested in large animal practice.

Over time more people moved into the community and some of the large farms were replaced by housing developments and hobby farms. The number of veterinary calls dropped as the number of animals decreased. Doctors Donald, Johnson and Baker, all of whom had a large following among the animal owners in the area, subsequently left the college. The veterinarians who replaced them were never able to establish the same sort of relationship with the clientele. In July 1971, the facilities were sold to a private practitioner and the college ended the Maple Plain clinic venture. The teaching program was transferred to the St. Paul campus and a herd health program was instituted to fill the void.

CANNON FALLS AMBULATORY PROGRAM

The ambulatory clinic program was expanded in the early '70s and Dr. John Anderson was added to the ambulatory staff. He initiated what was called the herd health program. In addition to treating sick animals, this program

Dr. John Anderson

included preventative medicine, including nutrition management and environment reproduction. Dr. Anderson developed many clients in the Cannon Falls area and developed an ambulatory clinic for the college in Cannon Falls. This clinic was highly successful.

CLINICAL TEACHING PROGRAM 1970'S

In the early '70s the college made some additional changes to expand the clinical teaching program. Dr. Kirk Gelatt, a board-certified ophthalmologist, was added to the faculty to teach ophthalmology; Dr. Pat McKeever, a dermatology specialist, was added to the faculty to teach dermatology. Dr. William Olson, a specialist in food animal nutrition joined the faculty to teach food animal nutrition.

PRECEPTORSHIP/EXTERNSHIPS START IN 1971

During this period, the small animal and large animal hospital hospitals continued to play the major part in the clinical education. This was particularly true with small animals; with large animals, many off-campus programs were involved, including the preceptorship programs. The preceptorship program provides an opportunity to spend four weeks in a practice that compliments or provides experience in areas not fully covered in the clinical teaching program of the College. This program was initiated in 1971 and has been highly successful.

The 1971 externship program provided senior veterinary students an opportunity to spend four weeks in a practice that complemented and/or provided experience in areas not fully covered in the clinical teaching program. It was intended that this experience would closely match student career interest in the veterinary care of food animals, companion animals, aquatic, avian, equine, and zoo animals, health control agencies, industrial veterinary medicine, or research. Each year students participated in two or more two-week externships in the 100 to 200 practices associated with the externship program. For example, in 1989 to 1990, fourth-year students participated in 103 different practices, three zoos and 11 academic research institutions. Students in private practices were involved in the treatment of more than 115,000 animal patients.

77 senior year students of the class of 1989 took part in 163 externships, during which they answered 10,841 calls to examine animals, and diagnosed and treated 193,194 animals.

Each student in 1991-92 continued to be scheduled for four weeks as externs in the "preceptorship" program. Each student participated in two or more two-week externships involving 75-100 veterinary practices.

In 1993-1994 all 73 fourth year students were scheduled for six weeks in the program. They participated in 75 different practices, six zoos and four research or academic institutions. Students in private practices were involved in the medical, surgical, diagnostic and consultation of 275,981 animal patients.

In 1995-1996 all 72 fourth year students were scheduled for six weeks in the program. They participated in 177 different practices. These included 68 small animal, 11 referrals, three emergency, two feline, 26 mixed practices, 11 dairy, 37 equine, five swine, two zoos, two aquatic, four avian, and six exotic animal practices. Students in private practices were involved in the medical, surgical, diagnostic and consultation of 86,458 animal patients.

In 2000-2001, fourth year students were expanded to eight weeks in the program, and they participated at 207 different practices. The total number of cases was 1,112,366 of which 5,466 were feline, 8,023 were canine, 780,146 were porcine, 4,513 were equine, 144 were sheep, 101,524 were bovine, and 217,500 were avian or exotic animals.

LARGE ANIMAL CLINICAL PROFESSORSHIPS

Around 1988 a program utilized by the clinical teaching program was the large animal clinical professorship program. Specialty veterinarians in equine, swine or bovine practice provided clinical rotations for students in their specialty practices.

This program provides the opportunity for students in the large animal clinical rotations to participate in one of 200 private specialized practices in dairy, equine and swine. The practices utilized were species-specialized.

Practices in Waconia, St. Michael, Buffalo, and Glenwood City, Wisconsin provided the bovine experience(primarily dairy). The equine program utilized two practices in the Anoka area. The swine program utilized a swine practice in the Nicollet/New Ulm area.
Practices specializing in goats, sheep, rabbits and llamas were also part of the program.

SUMMER SCHOLARS STARTS IN 2001

In 2001 the college developed a summer scholars program to provide veterinary students with a research experience. Approximately 15 students were accepted into the Summer Scholars Program each year. The program was ten weeks long and students present their research results at the college's annual Points of Pride Research Days.

Chapter 13
Theriogenology Program

The Theriogenology Program was initiated in 1950 and was originally called the Department of Obstetrics and Gynecology. Dr. David Bartlett, a D.V.M. who received his Ph.D. at the college, was appointed head of the department. He remained for several years and then resigned to establish the American Breeder service in

Dr. Zemjanis

Dr. William Brown

Deforest, Wisconsin.
Dr. Raimunds Zemjanis was appointed head professor of the Department in 1960. He received his Ph.D. about the same time Dr. William Gates received his Ph.D. and was added to the department.
The legend of Dr. Zemjanis is explained by Brad Sequin, a 1970 College of Veterinary Medicine graduate. D.V.M. students took a cow palpation lab during their third year, which included early morning trips to the Bartusch slaughterhouse about three miles from campus. On these trips, cows scheduled for slaughter that morning were palpated and each student recorded their findings. "The reproductive tracts were recovered following slaughter," Sequin said, "and returned to the theriogenology lab for review (and grading) that noon." Sequin described Prof. Zemjanis's didactic approach:
This nearly instant feedback helped students master the art and science of cow palpation and reproductive physiology and was the backbone of the Minnesota program – and where we really learned the techniques described in the Zemjanis textbook, Diagnostic and Therapeutic Techniques in Animal Reproduction. We knew we could learn a great deal from this man, his hardcore, old school, no nonsense approach was a shock to say the least. If we answered when doing cow palpation with "I think I found" he would respond, "your clients won't care about what you THINK you found, they expect you to KNOW what you found." Of course, he was right, and we gained profound respect for the teaching system he established and the principles he professed.
Dr. Sequin, incidentally, earned his Ph.D. at the college, and served as Large Animal Clinical Sciences Professor from 1977 to 2005, and Interim Chair in 1978.
Dr. William Brown was an instructor and worked as assistant to Dr. Zemjanis and Dr. Gates in instructing students. In 1965, Dr. William Brown received his Ph.D. and continued to assist teaching. In 1967 Drs. Melvyn Fahning and

Dr. Zemjanis (L) standing in white lab coat during lab with boxes simulating bovine uterine dystocia calf presentations.

Richard A. Schultz both received their Ph.D.s and were hired to expand the faculty in 1971. Dr. Charles Gibson was hired as an assistant professor and Dr. Charles Gibson, a graduate student, was hired as an assistant instructor. Dr. John Ellery, who was also taking graduate courses, helped instruct students in 1971-73.
Dr. Louis Archibald received his Ph.D. and was given an assistant professor appointment. Dr. John Ellen received his Ph.D. and was hired as an assistant professor. Dr. Robert Wescott continued to work in his private practice while teaching students as an adjunct professor. Faculty members Drs. Borge Gustafson and Howard Whitman resigned to go to the University of Illinois. They were key members of the Department. Additional faculty added to the theriogenology program were Drs. John Hurtgen, Brad Sequin and Norm Williamson and following completion of her Ph.D., Dr. Shirley Johnson joined the Department as small animal theriogenologist.
Dr. Zemjanis was nationally recognized as an excellent teacher of theriogenology. One reason was his textbook, Diagnostic and Therapeutic Technologies in Animal Reproduction, which helped students master the art and science of cow palpation and reproduction physiology. In addition to the Bartusch Slaughter House Program, there were many herd programs and many trips in the ambulatory program.
The Minnesota program has been utilized by many other colleges. Student training at the University of Minnesota Veterinary College in the 1960s under the direction of Dr. Zemjanis included a very capable group who remained to carry on: Dick Schultz, Mel Fahning, Louis Archibald, Charles Gibson, Dennis Copeland, John Ellery and Bob Wescott.

During Dean Thawley's tenure a lawsuit with his Associate Dean of Education Dr. Shirley Johnston was filed in civil court.[16] A jury sided with the CVM and Dr. Johnston moved on. She eventually became the first women dean at the College of Veterinary Medicine at Western University of Health Sciences in California and first women president of the American College of Theriogenologists.

[16] *Academic Health Center Oral History Project: https://ahc-ohp.lib.umn.edu/wp-content/uploads/2014/05/COsborne.pdf*

Dr. Peggy Root Kustritz is a 1987 graduate of the University of Minnesota College of Veterinary Medicine. She achieved board certification in theriogenology in 1994, completed a PhD in theriogenology in 1995, and a Masters in Medical Education in 2015. She has described Dr. Shirley Johnston as her very good mentor.
Dr. Shirley D. Johnston, Margaret V. Root Kustritz and Patricia N. S. Olson authored the Canine and Feline Theriogenology which included information on pet overpopulation and approaches to population control.

Chapter 14
Urolith Center

The Minnesota Urolith Center was founded in 1981 by Dr. Carl Osborne, Professor of Small Animal Medicine, to assist veterinarians by investigating the causes and cures of stones in the urinary tract. The mission statement is a commitment to the development of non-invasive methods that will consistently and safely prevent and cure urolithiasis.

Dr. Osborne came to CVM because few schools had P.hD. programs at that time. The CVM was closely affiliated with the medical school. He remembers being the first small animal intern at the CVM, prior to when residencies were even offered. Dr Osborne was a charter member of the Veterinary College of Internal Medicine. As specialization in small animal occurred in the 1970s, he specialized in the upper and lower urinary tract.

He valued all life and disdained any focus on profit. Toward the end of his career he expressed grave concerns about the cost of excellent medical care for animals. He taught his students to instead have compassion: "an empathetic awareness of the feelings of sorrow, and the willingness to help." He encouraged joining the 51-Percent Club, meaning there would never be conflict if each side moved 51%. When traveling with his colleague Dr. Lulich, he invited a homeless man to accompany them for a fine dinner.

He was a longtime columnist for DVM Magazine, his wisdom is still prominently found at www.dvm360.com.[17] He lived not only to teach medicine veterinary students and veterinarians but impart some of his philosophical guidance on living a good life: [18]

- I went into veterinary medicine as a service profession, not a profit profession.
- God feeds the sparrow, but He doesn't throw the feed in the nest.
- What we do for ourselves dies with us, but what we do for others lives on.
- Some folks define "Specialists as doctors who know more and more about less and less until they know everything about nothing. In contract, "generalists" knows less and less about more and more until finally they know nothing about everything.

The co-directors to of the Urolith Center are Jody P. Lulich, DVM, PhD, Diplomate ACVIM and Eva Furrow, VMD, PhD, Diplomate ACVIM.

In the 40 years since its inception, the Center has analyzed stones from more than 90 species of animals. They have been from companion animals including dogs, cats, rabbits, ferrets, guinea pigs, hamsters and birds, farm animals, and wild animals including elephants, dolphins, whales, giraffes, hippopotamuses, kangaroos, mink, pandas, snakes, tortoises, turtles, fish, lions, and wolves. Veterinarians in more than 69 countries have submitted stones. By 2021 the total number of submissions reached more than a 1.5 million.

Urinary stones come in a variety of shapes and sizes and are comprised of one or more biogenic minerals. Effective treatment requires knowing the exact mineral composition of the stone. Calcium oxalate and struvite (magnesium ammonium phosphate) are the two most common types. While most calcium oxalate stones require either surgical or non-surgical techniques for removal, a special feed developed by the Urolith Center in collaboration with Hills Pet Nutrition successfully dissolves struvite stones. In 2010 struvite uroliths comprised 46 percent of cat stones and 40 percent of dog stones. The Urolith Center continues to investigate therapies to dissolve and prevent calcium oxalate stones, which comprised 42 percent of cat and dog uroliths submitted in 2010.

The Center also pioneered the development of non-surgical techniques to move and remove uroliths from the lower intestinal tract of dogs and cats, including voiding urohydropropulsion, catheter retrieval, and retrograde urohydropropulsion. The Center has also incorporated laser lithotripsy to fragment uroliths in patients that would otherwise require surgery. Dr. Lulich and Dr. Furrow are currently the only two veterinarians in Minnesota performing laser lithotripsy. The laser pulverizes the urotlith and allows removal without cutting into healthy

[17] https://www.dvm360.com/authors/carl-osborne-dvm-phd-dacvim

[18] Academic Health Center Oral History Project: https://ahc-ohp.lib.umn.edu/wp-content/uploads/2014/05/COsborne.pdf

Drs. Lulich and Osborne

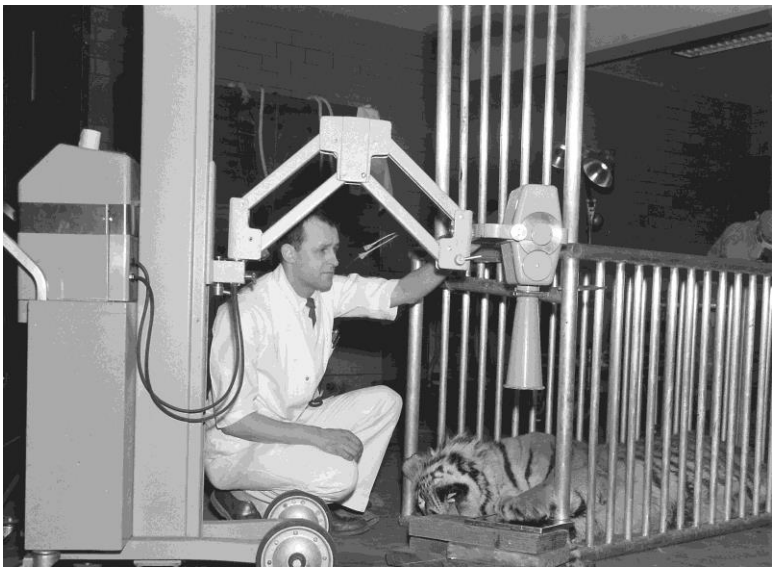
tissue.

Urolith Center offers web browser and mobile app access to reports and calculators can give preliminary assessment of the probable mineral type of the stone. The Urolith Center does not collect a fee for urolith analysis. The service is supported in part by a gift from Hill's Pet Nutrition. Additional support is received from contributions from veterinarians and pet owners worldwide.

Some Minnesota Urolith Center Milestones

- The first group to develop the safe and effective technique of retrograde urohydropropulsion.
- First to develop and recommend the technique of decompressive cystocentesis for the management of urethral and urinary bladder flow obstruction.
- First to develop the technique of voiding urohydropropulsion for the nonsurgical removal of small urocystoliths.
- Developed a technique for non-surgical retrieval of urocystoliths with a transurethral urinary catheter.
- Developed nutritional dissolution techniques for struvite, urate and cystine urolithiasis.

Chapter 15



Dr. Clifford

Zoo Animal Medicine Program

In the 1950s and 60s the college provided veterinary service to animals at the Coo Zoo in St. Paul. Dr. Don Clifford first provided most of the service, followed by Dr. Dale Sorenson in the 1960s. In the 1970s Dr. Ralph Farnsworth became the principal zoo animal medicine clinician, and Dr. Mickey Trent followed. Veterinary service to Como Zoo became a part of the field service programs that the college provided for farm animals. The zoo animal service made 95 calls and treated 447 animals in 1998-99; in 2003-04 it made 119 calls and treated 446 animals.

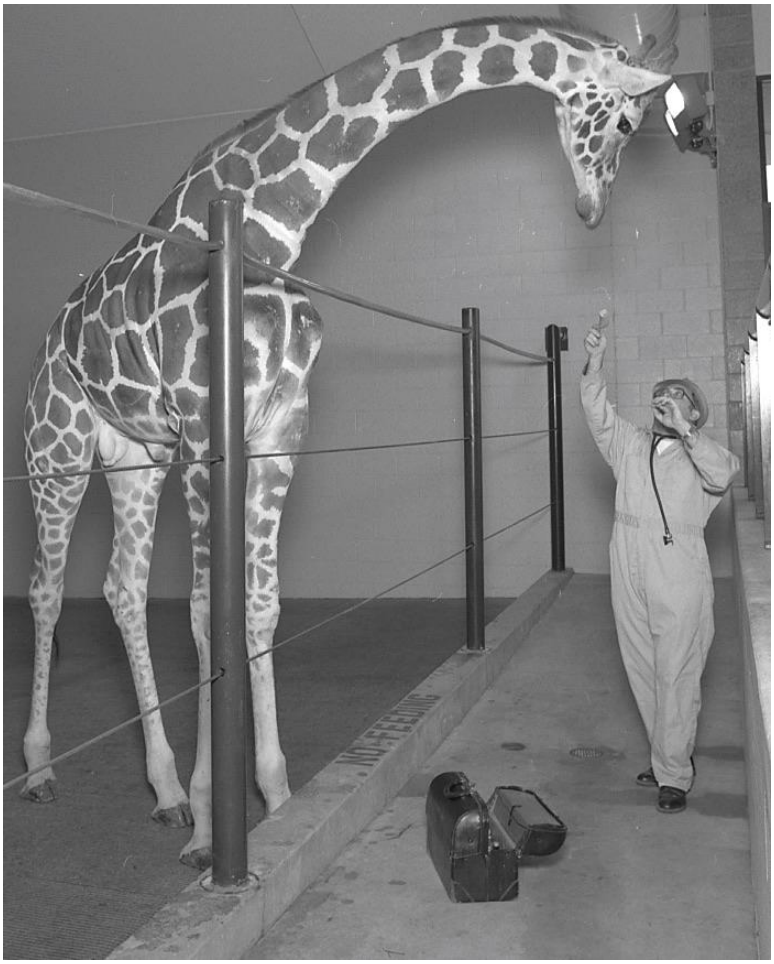
CURRICULUM COURSES

The college developed three elective courses in zoo animal medicine. These include Advanced Zoo Animal Medicine, Zoological Medicine, and Selected Topics in Zoo Animal Medicine. These courses covered all aspects of health care including housing, nutrition, diagnosis and treatment of specific diseases, and preventative health.

PRECEPTORSHIP/EXTERNSHIP PROGRAM

The preceptorship program gave senior veterinary students experience in a practice that corresponded to their interests, and some students elected the zoo program with exotic animals.
Several Minnesota graduates pursued careers in zoological parks. Dr. James Osterhaus is the veterinary director for the San Diego Wild Animal Park. Dr. Roger Brannian, who received an M.S. in zoo medicine from Minnesota, was the veterinary director at the Kansas City Zoo. Dr. Gary Kuene was at the Los Angeles Zoo; Dr. Mike Schmidt was at the Portland, Oregon zoo; Dr. Roy Barns was at the Louisville, Kentucky zoo; Dr. Rolf Radcliff was the veterinary director at the Fossil Rim Wildlife Reserve in Texas; Dr. Stephanie James served as the veterinarian at two zoos in New England; Dr. Martha Weber and Dr. Pete Black were on the veterinary staff at the Disney Animal

Kingdom in Florida. Dr. Betsy Stringer served on the staff at a zoo in North Carolina; Dr. Rachel Thompson was at the Minnesota Zoo, and Dr. James Wellington served on the staff of the FA Wildlife Diagnostic Laboratory.



Dr. Farnsworth and Sunny

Chapter 16
Animal Behavior Specialists

CEN-SHARE is the Center for Human-Animal Relationships and Environments. Founded in 1982 focusing on the benefits of the human-animal bond to improve the human health.
The Helping Paws of Minnesota is trains service dogs to enhance independence and quality of life. It was started as a pilot

Dr. Robert K. Anderson in 1956

project headed by Eileen Bohn and CEN-SHARE in 1985 and continues today.
Gentle Leader developed by RK Anderson and Ruth Foster. Ruth Foster was widely known dog trainer and president of the National Association of Dog Obedience Instructors. RK Anderson moved to a dairy farm at the age of 11 and his understanding of harnesses directly influenced the uses of harnesses in dogs.[19]

RK Anderson:

- Champion of Large Animal Medicine prior to small animal behavior per Carl Osborne.
- Leo K Bustad Award = compassion

[19] *Veterinary Practice News 10/24/2012 https://www.veterinarypracticenews.com/gentle-leader-co-inventor-dies-at-90/*

Chapter 17
Center for Animal Health and Food Safety

The Center for Animal Health and Food Safety (CAHFS) grew out of two high profile public health incidents related to animal health and food safety.
The first, a 1993 E. coli outbreak traced to Jack in the Box restaurants in the western U.S. was the largest E. coli outbreak in American history. It killed four people and sickened hundreds of others.
The second incident occurred a few years later, when scientists recognized a new human disease, variant Creutzfeldt Jacob disease, which is related to bovine spongiform encephalopathy, or mad cow disease. Both events shocked the country and convinced Minnesota policy makers, veterinarians and public health officials that government agencies, veterinarians and public health officials needed to work together to combat emerging threats to food safety.
In 2001, the College of Veterinary Medicine formed partnerships with the Colleges of Agriculture, Food and Environmental Science, Extension Service, Public Health, and Medicine. With $500,000 from the Minnesota legislature, the CAHFS was launched. Dr. Will Hueston became the first director. Its core mission is to create strong working relationships among food systems professionals, trade organizations, government regulators, public agencies and academics to anticipate emerging animal health and food safety issues affecting public health, and promote effective, science-based solutions. Initially the center had one full time faculty member and one full time staff employee. As of 2016, the center engages 15 veterinary public health faculty and 7 staff members as well as graduate students, residents, fellows and senior fellows. Between 2006-2016, more than $17 million has been raised in grants, gifts, affiliation agreements and external sales.
In 2004 CAHFS has been working with industry representatives to develop proactive risk assessments in the event of an outbreak of avian influenza, for example. Public health residents, faculty, technical experts and industry partners developed risk assessments for pasteurized liquid eggs, washed and sanitized eggs and other egg products as part of the secure egg supply plan. These risk-based decision tools will help prevent a disruption in the food supply in the event of an outbreak of highly pathogenic avian influenza in the United States while controlling the spread of the disease to other birds. CAHFS faculty and residents were also instrumental in developing a risk assessment and herd control program for Johne's disease, in partnership with the Minnesota Board of Animal Health.
In 2004, the U.S. Department of Homeland Security established the National Center for Food Protection and Defense (NCFPD), headquartered at the University of Minnesota, which focuses on protecting the food system from "intentional acts of adulteration and disruption." In 2015, the Center was renamed the Food Protection and Defense Institute (FPDI).
Several initiatives and organizations resulted during the center's first ten years, including Safe Supply of Affordable Food Everywhere (SSAFE), which fosters the acceptance and improvement of internationally recognized food protection systems and standards, and the Global Initiative for Food Systems Leadership (GIFSL) which builds shared leadership for food systems to ensure that everyone has access to safe, affordable, and nutritious food.

OIE COLLABORATING CENTER

CAHFS was named one of only six centers for capacity building by the World Organization of Animal Health (OIE) in 2006. The monitoring of animal diseases, animal welfare and food safety is accomplished by uniformity in

Dr. Minicucci (R)

Dr. Wells

international regulations. Veterinary Twinning Programs support the exchange of veterinary education resources providing for a "fairer distribution of veterinary education resources in developed and developing countries."

GLOBAL INITIATIVE FOR FOOD SYSTEMS LEADERSHIP

In 2007 Dr. Hueston was named Executive Director of the Global Initiative for Food Systems Leadership (GIFSL). The program includes leadership development for government and industry executives, collaborations with international organizations in delivering leadership training, conferences and courses that highlight food supply leadership issues and public policy development, and post-doctoral fellowships with a global food systems focus. IN 2014 the GIFSL transitioned from an organization into the Endowed Chair of Global Initiative for Food Systems funded by Cargill and UMN. Dr. Andres Perez has held the Endowed Chair in GAHFS since 2015 and became director of CAHFS in 2017. Thanks to this endowment the CAHFS has generated partnerships throughout the world involving trade, animal health and human health. The strategy for success is not based on "aid" but supporting sustainable development.

VETERINARY PUBLIC HEALTH AND PREVENTIVE MEDICINE EDUCATION

In 2002 The CVM and CAHFS developed a post-graduate two-year veterinary public health residency program, the first in the nation. As of 2020 CAHFS has trained over 50 residents in this program. The residents have come from several foreign countries and have gone on to secure positions at many institutions. The residency program was certified by the American College of Veterinary Preventive Medicine (ACVPM) as a formal program in its five core competencies, making it the first ACVPM-certified residency training program in the United States. Between 2007 and 2013, eighteen graduates of the program became ACVPM diplomats.

Dr. Larissa Minicucci was an early graduate of the residency program in 2004. She later served as co-director of the residency from 2012-2017. She built the CVM Student Initiative for Reservation Veterinary Services (SIRVS) from the ground up in 2009. After her battle against colon cancer ended in 2019, she inspired donations to the Minnesota Veterinary Medical Foundation (MVMF) and to the CVM funding of community medicine clinics totaling over $64,000. Her $100,000 AVMA life insurance policy was gifted by her husband to the CVM Dr. Larissa Minicucci Community Veterinary Medicine Endowment fund to establish a professorship and grow connection to underserved communities.

In 2003 CAHFS was instrumental in developing a combination Doctor of Veterinary Medicine (DVM) and Master of Public Health (MPH) program. This allows students enrolled in a DVM program at any accredited veterinary school to concurrently obtain an MPH degree. More than 130 students from fifteen veterinary schools have enrolled in the program since the first DVM/MPH graduate 2007 to 2020.

CAHFS offers students, faculty and professionals experimental training opportunities, including local, national and international policy courses, an intergovernmental organizations course, a farm to table study program, and an executive program for food safety leadership. Most research is done in partnership with at least one other stakeholder, and usually has a multidisciplinary approach involving several professionals with different skills.

LEADERSHIP

The CAHFS has been lead through many initiatives accomplishing its core mission of "creating and facilitating strong working relationships among food systems professionals & organizations, governmental entities, public agencies, and academia, to anticipate emerging animal health and food safety issues affecting public health."

- William Hueston, DVM, PhD: 2001-2007
- Jeffrey Bender, DVM PhD, 2007-2012
- Linda Valeri, MBA: 2012-2016
- Scott Wells, DVM, PhD 2012-2017
- Andrés Perez, DVM, PhD starting 2017

Chapter 18
Graduate Program

In 1920, the University of Minnesota Graduate School gave permission to The Division of Veterinary Medicine to offer masters degrees. The establishment of a graduate program greatly helped the Division of Veterinary Medicine to increase the volume and quality of research. The first graduate student in the program was Dr. Donald C. Beaver, who had received a D.V.M. degree from Michigan State University. Doctor Beaver's thesis was entitled "The Bacteriology and Pathology of Sterility in Cattle."

After Dr. Martin Roepke joined the staff in 1938, the Division was granted permission to offer the Doctor of Philosophy Degree, PHD, in veterinary medicine. The graduate program began to grow and was greatly enhanced through the cooperation of the Medical School. Graduate students in Veterinary Medicine took courses and worked in research laboratories in the Medical School. Medical School faculty served as advisors on graduate committees. The assistance of the Medical School helped The Division of Veterinary Medicine become known as one of the better veterinary graduate and research centers in the United States.

In 1947 when the School of Veterinary Medicine was established, the graduate program had been expanded and the number of graduate students increased. Several graduate students who were completing their advanced degrees were retained and formed a significant part of the faculty of the newly established school of Veterinary Medicine. Those included Dr. Ralph Kitchell, Dr. William Pritchard, Dr. Harvey Hoyt, Dr. Paul Hammond, Dr. George Mather, Dr. Donald Low, Dr. John Arnold, Dr. Clarence Stowe, Dr. Jay Sautter, Dr. Reid England, Dr. Winston Malmquist, and Dr. David Bartlett.

In 1957, the University changed the status of the School of Veterinary Medicine, from an academic unit of the Institute of Agriculture to a College of Veterinary Medicine as a separate autonomous unit with a Dean as its administrative head.

Several years later in 1960, the graduate programs were expanded to offer graduate degrees in eight disciplines of Veterinary Medicine. This became available with the addition of faculty with graduate degrees in these disciplines. The following graduate programs in veterinary medicine were developed:

- Theriogenology
- Veterinary Anatomy
- Veterinary Physiology and Pharmacology
- Veterinary Medicine
- Veterinary Microbiology
- Veterinary Parasitology
- Veterinary Pathology
- Veterinary Surgery, Radiology, and Anesthesiology

The graduate program fields in Veterinary Medicine remained the same for many years. In 1994, the program fields of Veterinary Anatomy and Veterinary Physiology and Pharmacology were merged to form a program named Veterinary Biology. In 1993 the program fields of Veterinary Microbiology, Veterinary Parasitology and Veterinary Pathology were merged for a program entitled Veterinary Pathobiology. In 1997, the graduate program in Veterinary Biology was renamed Molecular Veterinary Biosciences.

In 1998, the program fields of Theriogenology, and Veterinary Surgery, Radiology, and Anesthesiology were merged with Veterinary Medicine to form one graduate program named Veterinary Medicine. This new graduate program had five tracts of specialty which consisted of:

(1) Infectious Disease
(2) Internal Medicine
(3) Population Medicine
(4) Theriogenology
(5) Surgery, Radiology, and Anesthesiology.

In 2005, the Molecular Veterinary Biosciences had its name changed to Comparative and Molecular Biosciences. The graduate program of the College has developed international recognition for excellence. This began in the 1960's when a number of veterinarians from India obtained PhDs at the University of Minnesota in Veterinary

Microbiology. This enrollment has continued to increase and spread to other countries. Enrollment of international students has stayed steady at about 50% of the enrollment of about 120 students.

D.V.M./PH.D. PROGRAM

The College of Veterinary Medicine pioneered a combined D.V.M./Ph.D. with Nirah Shomer, a student who envisioned a career in private-sector research and completed her Ph.D. in 1993 and her D.V.M. in 1995. The program became formalized in 1992, accepting one student per year, and by 2016 had graduated 11 trainees, and an additional two students completed a M.S. before returning to the D.V.M. curriculum. The initial program was structured after M.D./Ph.D. programs: trainees completed two years of the D.V.M. curriculum, then the Ph.D. requirements, then returned for their last two years of D.V.M. training. This sequence is referred to as the concurrent option.

In 1998, the college revised the program to allow students to complete the D.V.M. prior to the Ph.D. provided they were accepted into the formal dual degree program by the end of their second year of veterinary school. This was called the consecutive option. The college now admits two D.V.M./Ph.D. students in each incoming class.

Dual degree trainees complete an expedited program in which up to six D.V.M. credits count toward the Ph.D. degree, and several Ph.D. courses can be used as elective credits in the D.V.M. curriculum. Students also use the summer months after their first two years in the D.V.M. curriculum, and use an eight to ten week rotation block in their senior year to conduct dissertation-related research. Thus, both degrees can be completed in seven years rather then the eight needed when the degrees are completed separately.

While completing the Ph.D. requirements, students receive stipend and tuition support through their advisors or training grants. When they return to the D.V.M. curriculum, they earn a tuition remission of $10,000 per semester. If they complete the program under the consecutive option (D.V.M. first, then Ph.D.), they are paid an enhanced Ph.D. stipend. Since there is no federal funding for D.V.M./Ph.D. training programs, all funding for these students comes from the College of Veterinary Medicine.

CVM GRADUATES WITH MS AND PHD DEGREES BECOME DEANS FREQUENTLY

Individuals receiving a PhD or MS degree from the graduate program of the College of Veterinary Medicine at the University of Minnesota have played an important role in the development of veterinary medicine in United States and several foreign countries. This is particularly true in veterinary education and research. Seventeen individuals became deans of veterinary colleges in United States and Canada:

- Dr. Donald E. Jasper who received a PhD in 1947 and served as Dean of the School of Veterinary Medicine, University of California from 1954 to 1962.
- Dr. Benjamin Pomeroy received a PhD in 1944 and served as Dean of the College of Veterinary Medicine, University of Minnesota in 1979-80.
- Dr. William R. Pritchard received a PhD in 1953 and served as the Dean of the School of Veterinary Medicine at the University of California from 1962 to 1982.
- Dr. Willus W. Armistead received a PhD in 1955 and served as Dean of Veterinary Medical Colleges at 3 institutions, College of Veterinary Medicine, Michigan State University 1957-1974; College of Veterinary Medicine, Texas A & M University, 1953 to 1957; College of Veterinary Medicine, University of Tennessee, 1974 to 1979.
- Dr. Robert H. Dunlop received a PhD in 1961 and served as Dean of the School of Veterinary Medicine at Murdoch University in Australia; Faculty of Veterinary Medicine at Makarere University in Uganda and the College of Veterinary Medicine at the University of Minnesota from 1980-1988,
- Dr. Wallace M. Wass received a PhD in 1961 and served as Dean of Ross University School of Veterinary Medicine in St. Christopher in the West Indies;
- Dr. N. Ole Nielsen received a PhD in 1963 and served as Dean of the Western College of Veterinary Medicine at the University of Saskatchewan from 1974 to 1982, and Ontario Veterinary College at the University of Guelph from 1985-1994;

- Dr. Richard E. Dierkes received a PhD in 1964 and served as a Dean of the College of Veterinary Medicine at the University of Illinois from 1976 to 1989 and The College of Veterinary Medicine at the University of Florida from 1989 to 1997;
- Dr. Ralph L. Kitchell received a PhD in 1950 and served as Dean of The College Veterinary Medicine at Kansas State University from 1964 to 1965 and at the College of Veterinary Medicine at Iowa State University from 1966 to 1971;
- Dr. Stanley Warner received a PhD in 1965 and served as Dean at Ross University School of Veterinary Medicine in St. Christopher in the West Indies;
- Dr. Neil Anderson received a PhD in 1968 and served as Dean of the College of Veterinary Medicine at Kansas State University from 1997 to 1998;
- Dr. Jeffrey Klausner received a MS in 1979 and served as Dean of The College of Veterinary Medicine at the University of Minnesota from 1998 to 2007;
- Dr. George C Shelton received a PhD in 1965 and served as Dean at the College of Veterinary Medicine at Texas A & M University from 1973 to 1988;
- Dr. E. Edward Wedman received a PhD in 1964 and served as Dean of the College of Veterinary Medicine at Oregon State University from 1975 to 1985;
- Dr. Shirley Johnston received her PhD in 1981 and served as Dean of the College of Veterinary Medicine at the Western University of Health Sciences;
- Dr. Trevor Ames received his MS in 1981 and was appointed Dean of the College of Veterinary Medicine at the University of Minnesota in 2007;
- Dr. Lonnie King received a MS in 1980 and served as the Dean of the College of Veterinary Medicine at Michigan State University from 1996 to 2006;
- Dr. Everett D. Besch received a MPH in 1965 and served as Dean of the School of Veterinary Medicine at Louisiana State University from 1968 to 1988.

NOTABLE MS AND PHD GRADUATES

In addition to these individuals becoming veterinary college deans, a large number went into academic veterinary medicine and accepted faculty positions in veterinary colleges. Many graduates that went into Academic Veterinary Medicine became department heads at colleges of veterinary medicine in the United States. Many became nationally recognized experts in their fields of specialty. Examples are:

- Dr. La Rue Johnson who received his PhD degree in 1966 and became a national and international expert of camelid health and disease and served as the Head of the Department of Clinical Studies at the University of Nairobi, Idenya.
- Dr. Darrel Joel received his PhD degree in 1969 and became a senior scientist at Brookhaven National Laboratory in New York. He was also named head of the Medical Department in 1991.
- Dr. Stanely Kleven, who received a PhD in 1970 became an expert in poultry diseases and became the Director of Poultry Diagnostic and Research Center at the University of Georgia.
- Dr. Carl Osborne obtained his PhD in 1970 and became a Department Head in the College of Veterinary Medicine at the University of Minnesota and was nationally recognized as an expert in small animal medicine.
- Dr. Charles Muscoplat received a PhD in Veterinary Microbiology in 1975. Dr. Muscoplat served the University of Minnesota as Vice President for Agricultural Policy and Dean of The College of Agriculture, Food and Environmental Sciences. Later he served as the Vice President of the University of Minnesota for Strategic Resource Development.

There are also many others who became experts and leaders in various fields of Veterinary Medicine. A number of individuals accepted positions in federal and state regulatory veterinary medicine. An example in this category is Dr. Harley Moon who received his PhD in 1965 and later became Director of the U.S. Department of Agriculture, National Animal Disease Center. Dr. Moon also was elected to the Natural Academy of Sciences, one of the highest level of professional recognition for an American Scientist.

INTERNATIONAL INSTITUTION BUILDING

The graduate program plays an important role in the international program. The international programs are primarily student or faculty exchange agreements with institutions in foreign countries. Faculties enroll in the College graduate program to obtain a MS or PhD degree. It is essentially an institution building for colleges in the exchange agreements. The College has had exchange agreements with several countries. These include:

- Morroco with the Institute Agronomique et Veternarie, Rabat (1980);
- Uruguay, University of the Republic; Montevideo (1983);
- Hungary, University of Veterinary Science; Budapest (1991);
- Thailand, Chulalong University Bangkok (1992);
- Italy, University of Pisa Veterinary Faculty, Pisa (1994);
- South Korea, National Veterinary Institute of the Republic of Korea (1995);
- Argentina, Universidad Nacional de Rio Cuarto, Cordoba (1995);
- France, Institute de la Recherche Agronomique (1998);
- South Korea, College of Veterinary Medicine, Seoul National University (2000) and Graduate School of East-West Medical Science, Kyung Hee University;
- Spain, Autonomous University of Barcelona;
- Hungary, Laszlo Szent Istvan Unversity;
- Thailand, Kasetsart University and Khon Kaen University;
- Argentina, Universidad de Buenos Aires.

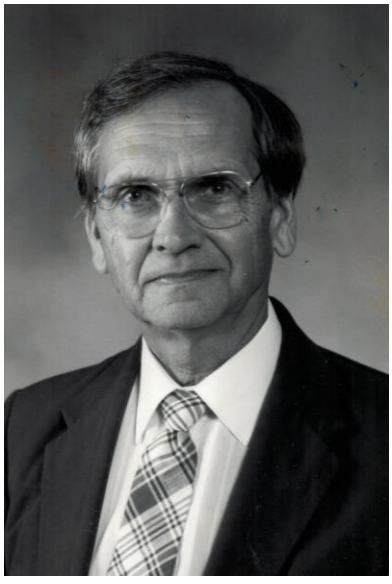
The number of exchange students varies from these institutions. The Institute Agronomique Veterinarie, Rabat, Morroco has had 18 obtain advanced degrees at the University of Minnesota. This International Exchange program plays important role in the development of veterinary medical education in these countries.
The number of foreign countries sending students to the College of Veterinary Medicine graduate program became rather extensive. In the academic year 1996-97 there was 65 students enrolled in the graduate program from 26 foreign countries. The countries were Afghanistan, Australia, Barbados, Brazil, Canada, Columbia, Germany, India, Indonesia, Iraq, Jordan, Mali, Malaysia, Netherlands, Pakistan, Saudi Arabia, South Korea, Spain, Sri Lanka, Sudan,

Taiwan, Thailand, Turkey, Uganda and Uruguay. Most individuals returned to their country of origin and were

Dr. Don Johnson

Dean Dunlop

Dr. Hueston



Dr. Diesch

Dr. Tom Molitor (L)

appointed to leadership positions. Some examples are given:

- Dr. Subronto received a PhD in 1981 and after returning to Indonesia was appointed as Director of Research in Education and Culture, Ministry of Education and Culture. From 1991-1994 he served as Dean of the College of Veterinary Medicine at Gadjah Mada University. From 1994-2002 he served as President of the Sarjanawiyata Tamansiswa University.
- Doctor Malcom Nairn received a PhD in 1965 and was subsequently appointed Dean of the Division of Veterinary and Biomedical Sciences at Murdoch University in Australia.
- Doctor Ananta Mishra received a PhD in 1972 and later became Dean of a Veterinary College in India. Muhammad Ashrat received a PhD in 1985 and became Dean of the College of the Animal Husbandry and Veterinary Science in Lahore, Pakistan.
- Doctor Shien-Young Kang received a PhD in 1987 and became Dean of the College of Veterinary Medicine, Chungbuk University, South Korea.
- Doctor Chui Joong Kim received a PhD in 1990 and became Dean of the Veterinary College at National University, South Korea.

Chapter 19
International Programs

In 1967, Dean Thorp created the position of Director of International Programs and Dr. H. (Hank) Stoddard was appointed. Stoddard had formerly been associated with the Food and Agriculture Organization at the United Nations. He had served as team leader of the International Rinderpest Control Campaign in Cambodia for the FAO and served four years as FAO Regional Livestock Production and Health Officer for Latin America. In 2009, the direction of international programs changed and was discontinued with the responsibility for developing and carrying out the programs referred to the departments.

The first international agreement began in 1954 with the University of Minnesota signing an agreement with the U.S. Department of State for Rehabilitation of Seoul National University, also known as the International Cooperative Agreement Minnesota Project. When the program was started, former Minnesota Governor Harold Stassen was special assistant to President Eisenhower and is credited with assisting the University of Minnesota in winning the first contract of this type after World War II.

The College of Agriculture and other colleges of the university had early involvement in the project. Animal diseases were a severe problem in Korea. In 1957, faculty members of the Veterinary College of Seoul National University began coming to Minnesota to study and observe teaching methods at the College of Veterinary Medicine. That same year, Professor Emeritus Willard L. Boyd went to Korea to study that country's needs in veterinary medicine. In 1960, Dr. John P. Arnold was sent to Korea to coordinate activities and assist the faculty at Seoul National University. Under the agreement, 12 faculty members of the Veterinary College of Seoul National University spent various periods of time at the College of Veterinary Medicine at the University of Minnesota. Many of these faculty members earned advanced degrees from the University.

In 1968 the College of Agriculture International Program developed a USAID program on institutional building with the Institute Agronomique et Veterinaire in Rabat, Morocco, a leading university of veterinary medicine and agriculture there. The College of Agriculture exchanged faculty and students with the agriculture component of the institute.

In 1969, the Minnesota College of Veterinary Medicine (CVM) entered into a contract with USAID to assist Vietnam in developing and improving its livestock disease prevention and control capabilities. This contract was to run from July 1, 1969 to December 31, 1972. The primary objective of the program was to increase swine production by 10% and poultry production by 15% during each of the next two years. This involved the introduction of 500 purebred Duroc boars and sows to start purebred herds that would in turn produce breeding stock to grade producers; the introduction of more than four million day-old chickens for sale to farmers; U.S. and Vietnamese livestock advisors to all provinces; the importation of hundreds of thousands of tons of corn from Thailand and the U.S.; and improved disease control primarily through vaccination of buffalo, cattle, swine and poultry.

This project was carried out by four veterinarians: Dr. Stephen Dille and Dr. Charles Rhodes (both 1969 graduates of Minnesota), Dr. Russ Burgoss and Dr. Michael Seely. Later Dr. Gary Beck joined the team. The program accomplished many of its objectives, including vaccination, rinderpest control, development of regional veterinary diagnostic laboratories, improved swine and poultry production and disease control, and education. The project was ended in 1975.

Dr. Hank Stoddard left the University and Dr. Dale Sorensen assumed responsibility for the International Programs.

In 1979, The University of Minnesota received a request from the Director of Higher Education in Cuba, who was interested in developing projects in four scientific areas. The University of Minnesota's colleges of Agriculture, Veterinary Medicine, Medicine and Biological Sciences decided to accept the request and sent a team to Cuba to discuss this issue.

The Medical School was represented by Dr. Neil Gault, Dean; Agriculture by Dr. James Tommen, Dean; Biological Sciences by Dr. Richard Caldecott, Dean, and Veterinary Medicine by Dr. Dale Sorensen, Director of International Programs for the College. The team also included some other individuals from the College of Agriculture. Because of this country's wobbly relationship with Cuba, an individual from the U.S. State department was included.

The College developed faculty exchanges with Cuba. Dr. Bill Olson spent time at the research institute and a veterinary school. A faculty member from Cuba spent time at Minnesota's College of Veterinary Medicine. The programs with Cuba were cancelled by the State Department in 1983 for political reasons.

In 1980 the College of Veterinary Medicine became an active participant in an exchange project with Morocco. Dr. Donald Johnson was appointed as the project leader and moved to Morocco to manage it. More than 18 college faculty were active in this project, most spending time teaching at the Institute in Rabat for short periods of time. Approximately 18 faculty members from the Institute came to the University and obtained M.S. or Ph.D. degrees. There was also some advising on the development of the research program at the Institute. This was a hugely successful, international exchange project. The 25-year USAID program on institution building of the Institute Agronomique et Veterinaire ended September 30, 1993.

In November 1983, Dean Robert Dunlop College of Veterinary Medicine and Dean Mario Bragunde of the Republic Faculty of Veterinary Medicine in Montevideo, Uruguay signed an agreement to conduct a technical exchange in teaching and research. The agreement was titled the Minnesota Uruguay Partners of the Americas Program. Dr. Stanley Diesch, professor of large Animal Clinical Sciences, served as chairman of this project and several faculty members from the College of Veterinary Medicine traveled to Uruguay to assist.

In September of 1985, Dr. Stanley Diesch was appointed acting Director of International Programs by Dean Dunlop and in 1990 was appointed Director of International Programs. In 1992 Diesch was appointed Honorary Consul to Uruguay in Minnesota by President Lasalle of Uruguay and approved by the U.S. State Department.

After the program was in effect for ten years more than 50 faculty, students and private practitioners were involved in the exchanges. Three veterinarians completed an M.S. degree and one a Ph.D. in the veterinary graduate programs in the College.

In 1991 an exchange agreement with the University of Veterinary Medicine in Budapest, Hungary was signed by Rector Dr. Laszio Vi Frenyo and Dean David Thawley for exchanges in education and research. Limited activity resulted because of limited funding under the U.S.-Hungarian Science and Technology Joint Fund. One faculty member from the Department of Animal Science traveled to Hungary during this exchange.

In 1992 an agreement on academic exchange between the Minnesota College of Veterinary Medicine and the Chulalongkorn University Faculty of Veterinary Medicine in Thailand. This agreement was renewed on August 1, 1995 and again on March 1, 1998. Dr. Ashly Robinson and Dr. Brad Sequin oversaw this contract.

In December, 1992 an agreement was signed with the Ukrainian Academy of Agrarian Sciences of Ukraine. It expired in December of 1994.

In March, 1994 an exchange agreement was signed with the University of Pisa in Italy for faculty exchanges in research and education. Dr. David Brown was the college's principal contact. This agreement was renewed in 1995 and expired in December 1996.

In June, 1995 an agreement was signed with the National Veterinary Research Institute of the Republic of Korea. Dr. Thomas Molitor was the principal investigator for the college. This agreement primarily involved cooperative research. It was renewed in May of 2008 with automatic annual renewal.

In October of 1995 an agreement was signed with the University of Buenos Aires in Argentina. Dr. Carlos Pijoan was the project leader from the college. This agreement expired in October 2000.

In December of 1996 an agreement was signed with the Seoul National University of South Korea. Dr. Carlos Pijoan was the project leader from the college. The agreement was renewed in May of 2000 with annual automatic renewals.

In 1998 the college signed an agreement of collaboration with the Institute de la Recherche Agronomique in France for the porcine genome project.

In September of 2000 an agreement was signed with the Graduate School of East-West Medical Science, Kyung Hee University in South Korea. Dr. Hans Soo Joo was the project advisor on this agreement.

In 1996 Dean Thawley appointed Dr. Carlos Pijoan as co-director of International Programs, and he served as director of International Programs from 1996 to 2001. Dr. Nagaraja
served as director 2001 to 2002. Dr. Bert Stromberg and Dr. Laura Molgaard served as co-directors from 2003 to 2011.

In 2001, an agreement was signed with the Autonomous University of Barcelona, Spain. Dr. Carlos Pijoan was the project leader.

In July of 2004 an agreement was signed with China Agricultural University. Dr. Jeffrey Klausner was the College of Veterinary Medicine contact. The arrangement was to renew the agreement every five years.

In August of 2005 an agreement was signed with the Facultad Ciencias Biologicas Universidad de Concepcion in Chile. Dr. Randall Singer was the college's contact. The arrangement was that it could be renewed on request of one university.

In February of 2006 an agreement was signed with Karnataka Veterinary, Animal and Fisheries University in Bidar, India. The primary purpose of this agreement was to establish a professional relationship and to cooperate in veterinary education and research. It was renewed in October, 2009. Faculty participating in this agreement from Minnesota were Dr. K.V. Nagaraja, Dr. Sainand Sreevatsa, Dr. P. Srirama Rao and Dr. Michael G. Conzemius.

In November, 2008 an agreement was signed with the College of Food Science and Nutritional Engineering, China Agricultural University. Dr. William Hueston oversaw this agreement and was the College contact. It is scheduled for renewal in November, 2013.

In 2010, three international agreements were signed by individual departments with the CVM. These included an agreement with Chiang Mai University in Thailand by Dr. William Hueston. This agreement was scheduled to continue for five years. A new agreement was developed with the Istituto Zooprofilattico Sperimentale delle Venezie in Italy by Dr. Trevor Ames, and the international agreement with the Institut Agronomique et Veterinaire in Morocco was renewed.

In 2012, three international agreements were negotiated and signed by Dr. Trevor Ames. These included a renewal of the agreement with the China Agricultural University. It also included the College of Animal Science and Veterinary Medicine at Jilin, China. An agreement was also signed with the Chinese Veterinary Medical Association

As of 2012, the college continued its international exchange agreements with fifteen institutions. These include institutions in Chile, China, Hungary, India, Italy, Korea, Morocco Thailand and Uruguay. The agreement with the College of Food Science and Nutritional Engineering, China Agricultural University was renewed on March 19, 2014 to March 14, 2024.

The agreement with the College of Agricultural Science and Veterinary Medicine at Yulin, China was renewed to June 1, 2022. The agreement with Chiang Mai University in Thailand was renewed to September 30, 2022. The agreement with Ankara University in Turkey was signed on November 1, 2014 and effective to October 31, 2019.

Dr. James O. Hanson

Chapter 20
Veterinary Continuing Education Program

The first veterinarian in Agricultural Extension was Dr. William A. Billings, a Cornell graduate who joined the U. of M. in 1918. Dr. Billings first worked as a pathologist in the Diagnostic Laboratory and later transferred to the Division of Agricultural Extension.

While working in the Diagnostic Laboratory, Dr. Billings performed many post mortem examinations on turkeys that had died of blackhead disease. Chickens were recognized as carriers of the organisms that caused the disease, yet the custom was to raise chickens and turkeys together. The death loss was high, and the disease seriously threatened the turkey industry in the Midwest.

Dr. Billings and Professor C.A. Smith devised a method of raising turkeys away from chickens. To demonstrate the feasibility of the method, Billings convinced some farm women to hatch turkey eggs in an incubator and raise poults in confinement away from chickens. When this method proved successful, Billings publicized the method through a bulletin entitled Talking Turkey, more than a million copies of which were distributed.

When the 1923 legislature passed an act directing the University of Minnesota to conduct hog cholera vaccination schools for farmers, Dr. Billings was assigned to conduct these schools. Dr. Billings became very unpopular among veterinarians in the large hog-raising area in Minnesota because, by training lay people to vaccinate hogs, he was taking away part of these veterinarians 'practice.

Dr. Billings was otherwise a popular speaker at poultry meetings throughout Minnesota. He was colorful and had a caustic wit. He would tell stories of people who thought they had "disinfected" their chicken house by sweeping out the chickens and dusting off a few cobwebs. In fact, this was how most people believed a chicken house was disinfected. Having got the attention of the audience with this story, he would then proceed to tell them how to properly disinfect a chicken house. Dr. Billings also had a turkey dressing recipe that became very popular. He spent much time promoting the recipe in his later years at the university. He died in 1970.

Dr. Raymond Solac became the second veterinarian on the extension staff in 1957. He had graduated from Michigan State University in 1950 and practiced for a time in Eyota, Minnesota. In 1953, he became a district veterinarian for the Board of Animal Health and was later placed in charge of all district veterinarians.

When he joined the extension staff, Dr. Solac was assigned an office in the College of Veterinary Medicine. This marked a new trend of locating extension personnel in areas they represented. It brought extension veterinarians in closer contact with other university veterinarians and helped keep them abreast of the latest developments.

Dr. Solac participated in the scabies and hog cholera eradication programs. His primary interest in was poultry, with an emphasis on geese and waterfowl. He retired in 1984.

DR. JAMES O. HANSON JOINS EXTENSION STAFF

Dr. James O. Hanson, a 1953 Minnesota graduate, practiced at St. Peter before he joined the extension staff in 1967. He was appointed director of continuing education and project leader of Veterinary Medicine. This marked an increased emphasis on continuing education for veterinarians. Dr. Hanson had a dual appointment requiring him to devote 60 percent of his time in the College of Veterinary Medicine (CVM) and 40 percent in Agricultural Extension. This allocation of time and responsibility was subsequently changed to an equal division between the two duties.

Dr. James O. Hanson retired on June 30, 1991. At the time that Dr. Hanson came to the university extension, veterinarians on the staff frequently spoke at livestock and poultry meetings and other farm groups, and prepared leaflets and bulletins. While they had some interaction with veterinarians, the staff's main focus was dissemination of information to lay groups.

The college expanded its extension program following the appointment of Dr. James O. Hanson as director of continuing education and project leader of veterinary extension. Under Dr. Hanson's direction the number continuing education conferences or workshops for veterinarians has increased to more than 30 per year on various aspects of animal health and disease. Faculty were recruited and helped with part time joint appointments in Agriculture Extension and Veterinary Medicine.

Dr. James A. Libby joined the staff as extension veterinarian of Meat Hygiene and Public Health in 1968. Dr. Libby had graduated from Minnesota in 1959. He had practiced after graduation before joining the federal Meat Inspection Service of the Department of Agriculture. He took part in the Meat Inspection Service program at Ohio State University where he obtained his M.S. and taught in the veterinary medicine college. He was subsequently assigned to teach at the U.S. Department of Agriculture Meat Hygiene School in Chicago, Illinois. Libby both taught Meat Hygiene and performed extension work at the College of Veterinary Medicine. He resigned in 1973 to start South Hyland Pet Hospital in Bloomington.

Dr. Michael Pullen had a 50 percent appointment with the Agriculture Extension Service. He joined the staff in 1976, succeeding Dr. James Libby, and provided programs on meat and food hygiene.

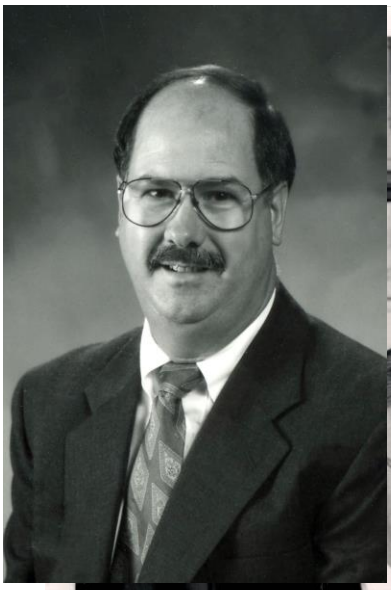
Several faculty members in the college have part time Agriculture Extension appointments to provide continuing education programs to the poultry, swine, beef and dairy cattle industries of Minnesota. Dr. Norm Williamson provided extension programs to the food producing industries of the state from 1975 to 2010.

Two faculty members provided extension programs for the dairy industry. Dr. Ralph Farnsworth was an expert in mastitis, a major disease problem in dairy cattle, and he presented many extension programs on that disease. He had a 25 percent joint appointment in the Agriculture Extension Service and provided programs from 1990 to 2004. Dr. Charles Gibson, an expert on reproductive diseases, provided many programs on reproduction in dairy cattle.

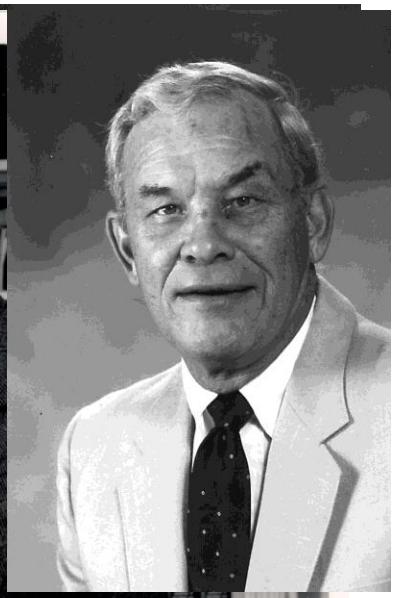
Dr. Dave Halvorson was hired in 1978 to provide expertise in avian health for the poultry industry as well as participating in the college continuing education program for veterinarians. Dr. Halvorson retired from the college in 2006.

Dr. Dale Haggard, a 1959 Minnesota graduate, developed expertise in beef cattle diseases and provided extension programs to the beef cattle industry. He retired in June, 1995, after thirty years of service in this position.

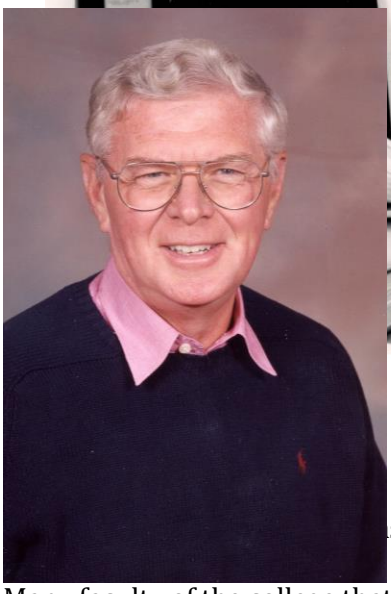
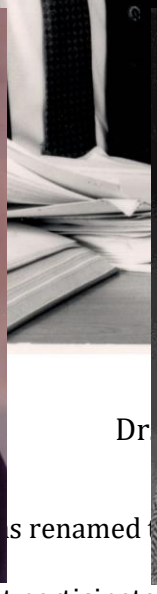
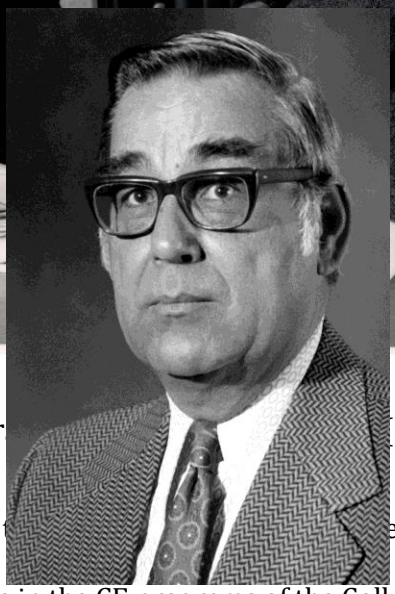
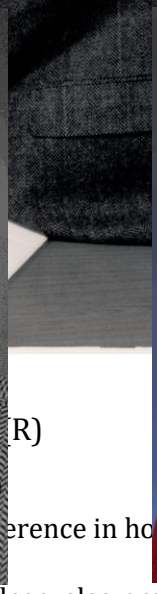
Dr. Allen D. Leman accepted a position in the college in 1975 with a joint appointment in Agricultural Extension and provided expertise in swine production. One of his goals was to optimize the health and well-being of pigs while improving productivity and profitability. One of the most successful of the extension conferences was the Minnesota Swine Conference for Veterinarians which Leman and Hanson organized in 1974. It gained international recognition and is now attended by 800-500 veterinarians each year. Following Leman's death in







Dr. [illegible] [illegible]ard


Dr. [illegible] (R)

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Many faculty of the college that participate in the CE programs of the College, also presented programs nationally and internationally by Dr. Jim Lilly Dr. Solac Dr. Janice Swanson

DR. CHARLES CASEY APPOINTED IN 1992

Dr. Robert Dunlop succeeded Dr. Hanson as director on a temporary basis until Dr. Charles Casey was appointed as director effective September 1, 1992 until 2005. In 1994 the name of the Continuing Education Program was changed to The Outreach Programs. Dr. Casey had graduated from the College of Veterinary Medicine in 1963. He served in the U.S. Army Veterinary Corps from 1963 to 1965. Dr. Casey practiced in West Concord, Minnesota, for 27 years after being discharged from the service. He served as a member of the Board of Regents of the University of Minnesota for twelve years starting in 1979, and its chairman from 1989-1991. Dr. Casey served as chancellor of the University of Minnesota Crookston in September 2005 to June 2012. The equine area in the University Teaching and Outreach Center on the University of Minnesota Crookston Campus is named in his honor.
Jan Swanson was appointed Director of Outreach Programs. Along with overseeing programs, she was also a writer for the CVM Profiles Magazine. Based on a concept by Dean Dunlop she designed the Leman Swine Conference Logo in 2001 along with Ruth Cronje. She served until 2009. That same year, Alicia M. Johnson was hired as

Director of Continuing Education, Bill Venne hired as Corporate and Major Gifts Officer as part of the Advancement Team headed by Sharon Staton.

Major Continuing Education Conferences 2009

- Allen D. Leman Swine Conference
- Minnesota Dairy Health Conference
- Companion Animal Spring Conference
- Mather Lecture Series
- Equine Fall Conference
- Minnesota Equine Dental Symposia
- Molecular Biotechnology Workshop

Nicole Kast joined the college as Continuing Education (CE) Program Manager in May 2011. She was the last person in this role at the CVM serving until November 2015. She was hired part-time at the MVMA in 2017 and by 2020 was CE Program Manager of the very successful CE programming of our state association.
The remaining CE events after 2015 were managed by the individual departments within the CVM:

- The CVM Ruminant Group works with the MVMA food animal committee for its annual meeting. The group also is involved with an internationally attended Lameness in Ruminants Conference.
- The Allen D. Leman Swine Conference is an annual educational event for the swine industry and is internationally attend by hundreds including swine veterinarians and industry professionals. The planning CVM Swine Group committee is currently headed by Dr. Montse Torremorell with all of the swine faculty actively participating in the program's ongoing success. The committee awards a well deserving individual the Allen D. Leman Science in Practice Award recognizing Dr. Leman's commitment to evidence-based medicine. An online course called Principles and Applications of Genetics and Genomics to Improve Animal Health is promoting genetic selection programs to manage PRRS (Porcine Reproductive and Respiratory Syndrome). The threat of PRRS continues despite immunization and biosecurity protocols.

Chapter 21
Veterinary Technician Programs

Dr. Cullen

Veterinarians in the United States have used assistants in their practice since the time of the first graduate veterinarians. Assistants were first used on a part-time basis during busy periods such as in the spring to help with the castration of horses and treatment of obstetrical cases. The assistants would hold the twitch on a horse for restraint or would pull the rope in obstetrical cases. Assistants would carry the instrument and medicine bags for the veterinarian, clean instruments, and help in the office. Assistants were men, and, in Minnesota, many were retired farmers.
As veterinary medicine advanced, assistants were called upon to perform more technical tasks. Development of small animal practices, advances in surgery and radiology, and greater reliance on laboratory work increased the need for assistants in large and busy practices. Veterinarians also began to hire women as well as men to work as assistants.
With the increased demand for trained veterinary assistants, institutions developed to offer training programs for assistants. These programs were created to train technicians to assist veterinarians during exams, medical treatment, vaccination, radiology, and surgery. The programs also trained students in office procedures such as scheduling, receiving patients, and record keeping. At first, the students were called "animal technicians," but the title was subsequently changed to "veterinary technicians."

AMERICAN ASSOCIATION OF LABORATORY ANIMAL SCIENCE (AALAS)

The development of the AALAS occurred in 1960. This was the first technician certification program to recognize and certify on the job trained animal technicians currently employed in animal research. Three levels of technologies were identified, 1) Assistant Laboratory Animal Technician (ALAT), 2) Laboratory Animal Technician (LAT), 3) Laboratory Animal Technologist (LAT). They were primarily called Veterinary Medical Assistants. Some training manuals were developed to help train these assistants in the early years.
Today there is further distinction by degree of education. Laboratory Animal Technologists and Veterinary Technologists have four-year degrees graduating with a Bachelor of Science degree. A veterinary technician has two-years or more graduating with an Associate of Applied Science degree.

UNIVERSITY OF MINNESOTA, WASECA

The first veterinary technician program in Minnesota was offered at the technical agricultural college campus of the University of Minnesota in Waseca in 1971. Dr. W. Clough Cullen was director of the veterinary technician program. The two-year program consisted of seven quarters: five quarters were spent taking courses on campus; one quarter was spent at a selected veterinary practice, laboratory, or zoo; and one quarter was spent at the College of Veterinary Medicine on the St. Paul Campus of the University of Minnesota, where students would go through a clinical rotation in the Veterinary Teaching Hospital. During the quarter at the college, the students took field trips to research laboratories, commercial pharmaceutical and biological laboratories, licensed dog shows, zoos, and animal research centers such as the Mayo Clinic at Rochester. The program covered subjects in both large and small animals, zoo animals, laboratory animals, birds, and laboratory work.
Since the first class of graduated in 1973, veterinary technician classes increased in size until classes of about 60 were graduating each year. The faculty originally consisted of one veterinarian plus support staff, but it subsequently grew to four veterinarians plus support staff. Veterinarians on the faculty included Drs. Wilbur Leibrand, Karen Brandt, Janet Donlin, and Larry Sinn.
The Veterinary Technician Program was accredited by the Committee on Animal Technician Activities of the American Veterinary Medical Association. Upon graduation, the students received an Associate Degree with a

major in Veterinary Technology. They were qualified to take the Minnesota Veterinary Technician Certification Examination or similar examinations in other states.
When the University of Minnesota began to have budget problems and required departments to cut expenses, the Veterinary Technician Program at Waseca was reduced to the point where Dr. Betsy Torgeson was the only veterinarian on the faculty. The program was altogether eliminated when the Waseca Campus was closed on June 30, 1992.

WILLMAR TECHNICAL COLLEGE

The Willmar Technical College, which is part of the Minnesota Technical College System, began to offer a Veterinary Technician Program in the fall of 1992. The courses are like those offered in the Waseca Veterinary Technicians Program. Dr. Betsy Torgeson is the lead instructor in the program. Mr. Steve Hormann, an experienced veterinary technician, is another instructor in the program. The Willmar Technical College was able to obtain most of the equipment used in the Veterinary Technician Program from the Waseca Campus of the University of Minnesota.
The University of Minnesota Veterinary Technician program started around the same time. The Willmar Community College technician program sent two groups of ten to fifteen students to the University of Minnesota Veterinary Teaching Hospital from May to November to complete internships. At that time, there was only one type of internship available. It consisted of two-week rotations that were spent in each of the primary areas of the hospital: the small animal treatment room, medical imaging, surgery, anesthesia, the ICU and the ER.

MEDICAL INSTITUTE OF MINNESOTA

The Medical Institute of Minnesota was founded in 1961 to train medical technicians. The facilities include the main campus on Nicollet Avenue in Minneapolis and additional space in St. Paul and Brooklyn Center.
In 1975, the Veterinary Technician Program began with Dr. Henry Philmon as program director. Twenty-four students were accepted in the institute's first class. The institute offered both day and night programs. day program consists of seven quarters while the night program was made up of fourteen quarters. The program covered both large and small animals, birds, zoo animals, radiology, and laboratory work. Approximately sixty percent of the students 'time was spent in classroom work and thirty-five percent is spent in laboratories. Once the course work at the Institute is completed, the students took one quarter of clinical training in an approved veterinary facility. The program had grown from twenty-four students in each class in 1975 to approximately forty students in the 1990s. In 2016, Dr. Jeffrey Hall was the program director, and Dr. Mark Gluck is assistant director. The institute's program was accredited by the Committee on Veterinary Technician Activities of the American Veterinary Medical Association. The graduates receive Associate of Science Degree in Veterinary Technology and qualified to take the Minnesota Veterinary Technician Certification Examination or similar examinations in other states.
In July of 2001 the Agrosy Education group was acquired by the much larger Education Management Corporation. The Medical Institute of Minnesota, University of Sarasota and the American School of Professional Psychology were renamed Argosy University. Argosy was featured on a PBS program *Frontline* aired "College, Inc." in May 2010 for-profit colleges deceptive marketing practices.
In 2017, Dream Center Education Holdings, a Los Angeles-based Christian nonprofit, bought the Argosy University but failed to achieve non-profit status. In March 2019 Argosy University's Eagan campus closed after the U.S. Department of Education stopped providing financial aid to its institutions when it learned the organization had used grant and loan money owed to students to cover its own operating expenses. The university owed more than $1.3 million to Minnesota students, according to the state Office of Higher Education.

WILLMAR COLLEGE BECOMES RIDGEWATER COLLEGE

In 1996, Willmar Community College changed its name to Ridgewater College. The College still sent students to the University of Minnesota Veterinary Teaching Hospital for internships, only now the groups where bigger consisting

of about 15-30 students. At around the same time, the VTH (Veterinary Teaching Hospital) started having students from the Medical Institute of Minnesota do internships as well. However, these groups consisted of only about 2-3 students per year.
Dr. Allen Balay left practice in 1980 and began teaching veterinary technicians at the Wilmar Technical College then Ridgewater College, and continued until 2020. He has been Director since 1995. He has been recognized as a US Top 40 Veterinary Technology Professor and earned recognition and service excellence by the Minnesota Board of Trustees.
In 2006, Ridgewater College stopped sending their students to the VTH because of the lack of caseload.
In 2007, the Veterinary Medical Center (formerly Veterinary Teaching Hospital) started accepting students from Ridgewater College, Argosy University (formerly Medical Institute of Minnesota), Minnesota School of Business, Globe College and Bell Ray Institute of Colorado. Only 10 students where accepted every 10 weeks to provide an adequate learning experience.

Dr. Balay and a group of students

In 2016, the internship program at the VMC was offered year-round and has more than 40 students per year. The CVM Veterinary Technician Internship Program supervisors at the have been Janice Parrow (1995-1999); Cindy Henrikson (starting in 1999-2019) when she retired, Brent Bassett (2009-2012) and Darcy Mattson (2018-2022). The students had the freedom to choose the rotations on their internship. They are offered rotations in small animal medicine, medical imaging, surgery, anesthesia, ICU, ER, large animal, necropsy, rehabilitation, cardiology, dermatology, ophthalmology, neurology and oncology. The Veterinary Medical Center had students from Ridgewater College, Argosy University (formerly the Medical Institute of Minnesota), the Minnesota School of Business, Globe College, Bell Ray Institute of Colorado, Rochester Community and Technical College, and Duluth Business University.
In 2016 Minnesota had 12 veterinary technician programs. By March 2019 many for-profit "private" colleges in Minnesota had closed due to financial mismanagement or litigation troubles including Argosy University, Globe University and the Minnesota School of Business.[20] In 2022, the four accredited programs are part of the Minnesota State College and Universities System. Graduates receive an An Associate of Applied Science (AAS) degrees after 2+ years of study.

All AVMA accredited programs in Minnesota 2022

- Rochester Community and Technical College
- Vermillion Community College
- Dakota Technical College
- Ridgewater College

VETERINARY TECHNICIAN ADVANCEMENT TO LICENSURE

The MVMA Veterinary Technician Committee restarted in the fall 2020 and lead by chairperson Dr. Balay. He partnered with state senator Gary H. Dahms (Redwood Falls) and representative John Huot (Rosemount) to introduce legislation to license veterinary technicians by amending the Veterinary Practice Act in spring 2021. "The committee believes that mandatory credentialing will lead to less career turnover, greater retention, and less shortages of veterinary technicians in Minnesota".[21] The National Association of Veterinary Technicians in America (NAVTA) observed an average career life expectancy was between 5-7 years. In 2018 NAVTA and Bureau of Labor

[20] *https://www.startribune.com/argosy-university-s-eagan-campus-will-close/506822842/*
[21] *2021 MVMA CVT Chronicles "Getting to the Bottom of the Veterinary Technician Shortage in Minnesota" by Dr. Al Balay*

Statistics report a median of just $14-16 per hour. This is despite recurring economic surveys documenting that fully utilizing a credentialed veterinary technician increases practice revenue significantly. Other benefits include "help more pets, more consumer confidence, reduce barriers to care, improve professional well-being, improve practice financial well-being, improve veterinary nurse recruitment and retention, and improved value to consumers".[22]

NAVTA Demographic Survey 2016

- Challenges
    - Low income
    - Burnout, lack of recognition, lack of career advancement
    - Competition with on the job trained veterinary technicians
- Rewards
    - Giving the best care to animal patients
    - Making a difference in a pet's life for the client
    - Assisting in a diagnosis
    - Staying current on medical technology and science

In April 2022, the CVM and Food, Agriculture and Natural Resources Sciences (CFANS) were exploring potential creation of a 4-year Veterinary Technologist (B.S.) degree. A MVMA survey was conducted to its members and a members facility.

CVM VETERINARY TECHNICIAN ADVANCEMENTS

The position of Supervisor, Float Team was instituted in 2004 with Cindy Henrikson overseeing a dramatic expansion of technician responsibilities at the CVM. Upon her retirement in December 2019, Anne Johnson, CVT (hired in ????) stepped into the expanded role of *Supervisor, Float Team, Technician Training Staff, SA Dispensary*. The CVM created a new position in April 2021 to oversee the ongoing training of the veterinary technician staff called *Technician Training Specialists*. Darcy Mattson, CVT and Hannah Known, CVT were the first chosen Technician Training Specialists. Darcy Matteson was first hired as at CVM in 1999. Over 20 plus years she has become key part of the CVM team. For example her title is *Veterinary Technician Training Specialist, Veterinary Technician Internship Coordinator, Radiation Therapy/Float Team and Unicorn Trainer*. This training of technicians succeeds often by pairing with a staff member that is learning and refining their CVT skills. The program implemented includes protocol aids to stay organized. This position also supports the learning of student, interns and resident DVMs.

Kim Horne, AAS, CVT, VTS (Dermatology) was an influential at the CVM for many years and with the MVMA Veterinary Technician Committee that worked directly with the Board of Veterinary Medicine on an initiative to establish Veterinary Technician Licensure in Minnesota by being defined in our practice act as Licensed Veterinary Technicians (LVT). As this effort began, Minnesota was one of only 10 states without such a definition. This effort is to reverse the longterm trend of many CVTs leaving the profession within 6 years. Licensure will increase career opportunities, and renumeration. It has been throughly established that using veterinary technicians to the full level of their education benefits the practice of veterinary medicine and animal owners.

NAVTA VETERINARY NURSE INITIATIVE

Many human nurses in the US are against this initiative as their state regulations may include title protection with the term nurse/nursing being limited to human patients. It was an effort to nationally credential all veterinary technicians as a Registered Veterinary Nurse by the NAVTA (Nat. Assoc. of Veterinary Technicians in America). In 2022 neither the MVMA or the MAVT (Mn. Association of Veterinary Technicians).

[22] *02/01/2020 https://todaysveterinarybusiness.com/consumers-wont-wait/as We Can't Afford to Wait by Dr. Bob Lester, DVM.*

Chapter 22
Veterinary Medical Library

Housed in Haecker Hall on the St. Paul campus, the veterinary medical library was established as a departmental collection in 1948. At the beginning, the caretakers of the collection were Miss Rukavina, Mrs. Hovey, with Mary Baker being the librarian until 1955. Evelyn Raynolds became the librarian in 1955 and served for nearly twenty years. During her tenure the departmental collection became an official part of the University of Minnesota Libraries, administered by the St. Paul Campus Libraries. The Veterinary Medical Library received some financial support from the College even though it was not part of the College of Veterinary Medicine administratively. The

librarians and faculty of the College nurtured a very close relationship supporting the teaching and research goals

André Nault

Livija Carlson

of the College

The Library's collection was moved to the second floor of the Old Anatomy Building in 1954. In 1971 it was relocated to the fourth floor of the Veterinary Sciences Building, where there was much more space for its rapidly growing collection.

The mission of the Veterinary Medical Library was to enhance the teaching, research and services of the University of Minnesota and specifically the College of Veterinary Medicine. For nearly half a century, the two head librarians, Evelyn Raynolds (1955–1975) and Livija Carlson (1976–2003) worked on developing the collection and services for the College. Both were adjunct faculty members of the College.

Teaching was one of the primary responsibilities. Carlson taught a part of the Introduction to Veterinary Medicine and conducted seminars throughout the year on the use of the Library's resources for teaching, research and learning.

The staffing levels for the Library were very low, but the library has a dedicated and knowledgeable Library Assistant, Lisa Berg, who started full time in 1973. She helped with the development of the collection and services including reference, reserves, and exchanges). During these years the College helped financially, mainly with student worker staffing, and the College's Library Committee was very supportive.

The twentieth century was a time of comprehensive collection development for veterinary medicine and related basic sciences. The Veterinary Medical Library became one of the best-known collections in the field, with one of the largest holdings of foreign veterinary periodicals. The Library became a major lender of inter-library loans on veterinary related subjects.

During a major expansion of both national and international collaboration, Evelyn Raynolds helped establish the Veterinary Medical Libraries Section of the Medical Libraries Association, and Livija Carlson continued this association until her retirement.

Carlson continued in Evelyn's footsteps, expanding the reach of the Library with international cooperation and support. She became involved in the activities of the International Conference of Animal Health Information Specialists, with the first conference in 1992, held in Reading, England. The membership of this group is world-wide, promoting and helping each other. This group made early and extensive use of the digital revolution and contributed, in a major way, to the advancement of animal health information in libraries throughout the world.

Carlson worked in helping to develop the veterinary medical library in Uruguay (CVM had a partnership with the veterinary college in Uruguay). Later she was a consultant for the development of the library of Latvian University of Agriculture, Faculty of Veterinary Medicine, in Jelgava, Latvia. At the same time, the Medical Library Association, International Section had several Sister Library projects, and Carlson worked with the Medical Research Library in Riga, Latvia. She was also employed as a consultant to advise on organizing a library and developing the collection of the Ross University, College of Veterinary Medicine on St. Kitts.

Lisa Berg, during these same years, worked with many U.S. and international libraries in exchanging materials, building good will and connections. She received awards including the M.V.M.A. President's award in 2008, and the University of Minnesota President's award for outstanding service in 2014.

Until the beginning of the 21st century, the Library had one of the most comprehensive veterinary collections in the U.S., having a very extensive collection of books and periodicals, with basic holdings that, also, represented the evolving state of veterinary medicine. But, with the growth of advanced technology, especially in the field of scientific information, rapid changes began to happen. Since the University Libraries were always at the forefront of the technologies that made information available, embracing this fast pace of digital access drove the next phase of change to the collection and access to information in the Library.

The Library's veterinary collection shrank after 2000 due to withdrawals and the offsite storage of paper materials. At the same time, the resources available online exploded due to the digital revolution.

Andre Nault became the librarian in 2005, and under his leadership the use of electronic books and periodicals grew. Nault has brought many of the functions of a librarian into the new age of digital technology. He offers course-integrated instruction, literature searches, one-to-one consulting, and other services online to support the needs of the College.

The administration of the Veterinary Medical Library has been shifted from the St. Paul Campus Libraries to the Health Sciences Libraries. Part of this shift included the transfer of the Rare Book Collection in the Veterinary Medical Library to the Wangensteen Historical Library.

Chapter 23
Minnesota Veterinary Historical Museum

THE BEGINNINGS

The Museum had its beginning in about 1970 when professors John Arnold and Henry Griffiths began collecting items of historical interest within the College of Veterinary Medicine (CVM) and placed the items in a hallway display case. However, another individual given permission to use the display case discarded the items.
Dr. Arnold and Dr. Clifford, both surgery professors at CVM, began collecting items of historical interest in 1972 and placed them in a display case in the Old Anatomy Building. They continued to collect items and stored them in the basement of the Veterinary Hospital. However, a workman assigned to a remodeling project thought the items were junk and discarded them.
In August of 1985, Dr. Walt Mackey, then president of Minnesota Veterinary Medical Association, contacted Dr. John Arnold, chairman of the M.V.M.A. Memorial and Historical Committee, to explore ideas to preserve the history of veterinary medicine in Minnesota. A month later Dr. Arnold and his committee initiated discussions with the M.V.M.A., the College of Veterinary Medicine, the Veterinary Council Alumni, and the Minnesota State Historical Society, hoping to develop a plan to collect, preserve, and exhibit historical veterinary artifacts. Between December 1985 and February 1986 several meetings were held and a table of organization and bylaws were developed and adopted.

THE FOUNDERS

(L to R) Drs. Sauter, Arnold, Hanson & Mackey

The Minnesota Veterinary Historical Museum was founded in 1985 by nine veterinarians, primarily professors in the College of Veterinary Medicine. They were: Drs. John Arnold, Paul Cox, Henry Griffiths, Bee Hanlon, Les Jacobson, Walt Mackey, Glen Nelson, Jay Sautter and Ron Werdin. Four of the founders bore the major workload of setting up the museum during the late 1900s. They were Drs. John Arnold, Bee Hanlon, Walt Mackey and Jay Sauter.

Development of non-profit status

The founders soon realized that even though space in the CVM was made available, it did not provide a funding stream for operation of the museum. Articles of incorporation and bylaws were adopted that provided for an independent organization capable of accepting tax-free donations.

MUSEUM FOUNDATION CAMPAIGN

Dr. Pomeroy was a professor, researcher and teacher at the University for 40 years and in retirement was a citizen lobbyist for 30 years in the Minnesota Legislature. Dr. Pomeroy passed away in 2004 at 92 years of age and the Minnesota legislature honored him by providing the University with four million dollars to renovate the historic "Old Dairy Barn" on the campus of the College of Veterinary Medicine. The University Board of Regents named the new facility the Pomeroy Student/Alumni Center in his honor. The Minnesota Veterinary Historical Museum was included in the renovation plan of the "Old Dairy Barn" with two gallery/conference rooms, named the Pomeroy Gallery on the main floor and the Honors Gallery on the second floor.

This prompted the MVHM Board of Directors to launch a "Museum Foundation Campaign" in 2006 to establish a $750,000 endowment that would provide for a half time curator position.

The Museum Foundation Campaign publicized the notoriety and career of Dr. Ben Pomeroy in seeking donations. Dr. Peter Poss was mentored by Dr. Pomeroy during his poultry industry career and in his retirement was hired as an assistant to Dean David Thawley in the College of Veterinary Medicine in the 1990s and lobbied for the CVM and for animal agriculture with Dr. Pomeroy. Drs. Carl Jessen and Rollie Olson later recruited Dr. Poss to join the museum Board of Directors working group and serve on their major donor committee with Dr. Don Sime. Drs. Sime and Poss accepted Co-Chair positions.

During the first two years of the campaign close to half of the endowment goal was achieved with pledges and donations primarily from Minnesota veterinarians, but also with significant gifts from the Minnesota poultry industry. Following the retirement of Dr. Mackey, Drs. Poss and Sime were elected President and Vice President of MVHM in 2010. The endowment continued to grow and with increases in museum financial support, Paul Maravelas was hired as part time curator. Expendable funds also increased with an annual fishing contest started in 2014.

The CVM has no museum budget fund, but provides the museum with office, storage, exhibit space and internet support. Also, with support from Dean Trevor Ames our storage and exhibit display space in the College improved. The museum provides the College and its students with historical information about the veterinary profession in Minnesota and the CVM.

THE MUSEUM OFFICERS AND VOLUNTEERS

Presidents: Dr. John Arnold 1986-88, Dr. Walt Mackey 1988-99, Dr. Carl Osborne 1999-2010, Dr. Peter Poss 2010-2021. Dr. Ben Porter (starting 2021) Vice President: Dr. Walt Mackey 1986-88, Dr. Ken Johnson 1988-89, Don Sime 2000-2015, Dr. Ben Porter 2016-2021 & Dr. Paul Draheim starting 2021. Secretary: Dr. Bee Hanlon 1986-88, Dr. Carl Jessen, Dr. Barbara O'Leary 2004-2009, Mary Lisa Berg 2009-2021, & Dr. Hannah Curtis starting 2021.

MVMA 2016 Annual Convention (L to r) Drs. Stan Held, Carl Jessen MVHM Treasurer, Don Sime and George Krienke

Treasurer Dr. Paul Cox 1986-89, Walt Mackey 1999-2004, Dr. Carl Jessen 2001-2021, & Dr. Paul Draheim starting 2021. Webmaster: Dr. Tom Fletcher 2001-2021.
Other volunteers and curators: Dr. John Arnold 1985 -2005, Dr. Jay Sauter 1985-2002, Dr. Henry Griffith 1985-87, Wendell Deboer 1989-2010, Dr. Walt Mackey 1999-2008, Dr. Bee Hanlon 1989-2006, Mary Lisa Berg 2005-present, Dr. Dale Sorensen 1990-2018. Dr. Peter Poss 2006-2010, Paul Maravelas 2010- present. Also other volunteers were: Dr. Glen Nelson, Dr. Don Johnson and Dr. Rollie Olson.

Museum Facilities

The museum has been provided space in the CVM for exhibits throughout the college. The largest is the corridor exhibit between the hospital and the AS/VM building. The CVM also provides room 143 on the main floor of AS/VM that is the office, meeting room and library. Two rooms are provided on the basement floor of AS/VM for

storage. The museum has about 4,000 cataloged objects, 600 historical books, 1,000 photographs and 50 oral interviews.

Front (L to R): Paul Maravelas, Lisa Berg, Dr. Sorensen, Dr. Ames
Rear (L to R): Drs. Sime, Fletcher, Poss, Jessen

Chapter 24
Buildings and Appropriations

The College of Veterinary Medicine campus aerial view in 2015. To the west is downtown Minneapolis.

Obtaining funds for needed facilities was a difficult task and the College has spent 70 years working to procure good facilities from the Minnesota legislature, the principal source of funds for buildings. In the recent past, however, several buildings or portions of buildings have been funded with private funds. The following is a description of the physical facilities at the College from 1947 to 2016:

1901: THE VETERINARY MEDICINE BUILDING

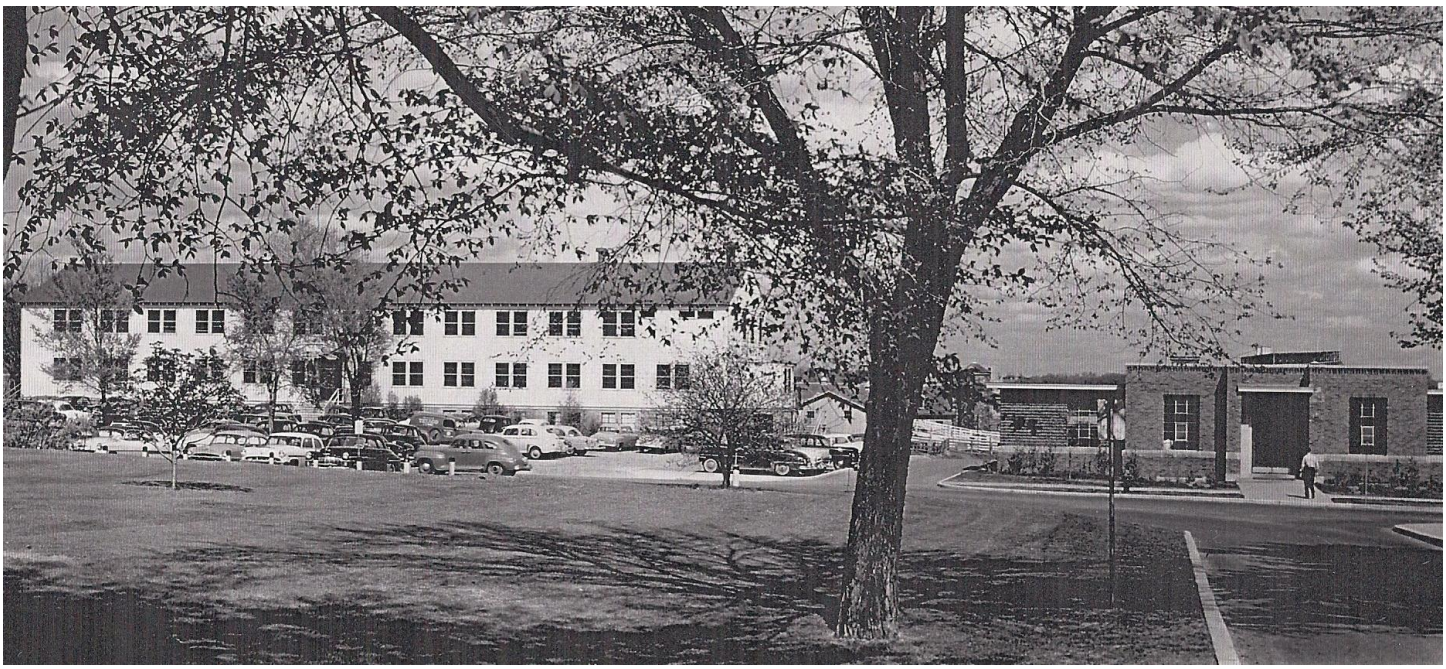
Built in 1901 at a cost of $25,000, this building was utilized by the Veterinary Division in the School of Agriculture to teach veterinary classes to undergraduates. In the fall of 1946 it was used for teaching the first class of veterinary students in the new School of Veterinary Medicine. The first floor contained an operating room with an amphitheater seating eighty, a pharmacy and instrument room, a box stall ward, a contagious disease room, and a dissecting room. The second floor included a large anatomy museum, a physiology laboratory, and a private office. In 1915, the east wing was added to the Veterinary Medicine Building at a cost of $25,000.
Upon the establishment of the School of Veterinary Medicine in 1947, the Veterinary Medicine Building was renamed "Old Anatomy." In 1992, the east wing of the building was torn down due to its deteriorating condition.

Veterinary Medicine Building before east wing addition
“”Old Anatomy”

Veterinary Medicine Building (Old Anatomy), right building built in 1901 & left building built in 1915

The remainder of the building was in poor condition, and the second floor has been condemned as unsound and unsafe for use. It was razed in 2015.

1947: TEMPORARY EAST OF HAECKER (TEH)



Temporary East of Haecker Building (L). Veterinary Clinic building at east entrance (R)

Another building was needed for class space in the second year of the school, and Temporary East of Haecker was moved onto the campus in 1947.
When the Veterinary School was established in 1947, the Veterinary Diagnostic Laboratory was located in the Temporary East of Haecker building. It included a necropsy laboratory, a microbiology laboratory, a pathology laboratory and staff offices on the first floor.

1947: VETERINARY CLINIC BUILDING

The Veterinary Clinic Building was the first facility erected for the new School of Veterinary Medicine. The Minnesota Legislature appropriated $600,000 for a building and furnishings. Approximately $450,000 was used to build the Veterinary Clinic and $150,000 was used to equip the clinic. Essential for the clinical part of the professional education program, it was named the Veterinary Clinic and was the only building appropriated with the establishment of the school.
The building also contained sleeping rooms for students assigned to after-hours duty. The lower floor of the building contained the Large Animal Clinic, staff offices, a conference room, a supply room and a pharmacy, a garage, and a research room for large animals.
The building also contained student and staff locker rooms for men. No student or staff locker rooms were available for women.
The previous physical facilities of the division of veterinary medicine included several minor buildings for housing animals and two major buildings: the Old Anatomy building and the TEH building.

1950: VETERINARY SCIENCE BUILDING

The west end of the Veterinary Science Building (R) located next to the Veterinary Clinic (L)

Veterinary Science Building South Entrance

The Veterinary Science Building is a four story 82,000 square foot structure, originally constructed in 1949 for $600,000 with additional stages and remodeling in 1955, 1957 and 1961. The total appropriation for the building was $2,516,000. The building houses the Veterinary Biology Sciences departmental office, conference room and research laboratories for pathology, clinical pathology, microbiology, parasitology, and avian medicine. Two classrooms, the Veterinary Medical Library, computer/audiovisual laboratory and research animal housing facilities are located in this building.

1950: VETERINARY CLINIC DEDICATED

The new Veterinary Clinic was dedicated in 1950. It consisted of two floors and was built on the side of a small hill. The upper street-level floor housed the Small Animal Clinic, the director's office, a business office, staff offices, a clinical pathology laboratory, and a classroom.
The building also contained student and staff locker rooms for men. It also contained sleeping rooms for male students assigned to after-hours duty. No other rooms were available for female students or staff.
The lower floor of the building contained the Large Animal Clinic, staff offices, a conference room, a drug and supply room and pharmacy, and a research room for large animals. The lower floor also provided facilities for automobiles and medical equipment to conduct an ambulatory service.

Veterinary Clinic Building

Large Animal Hospital facilities located on the first floor provides pens and handling equipment for a wide range of facilities and services for large and small animals. This includes bulls, cows, swine, sheep, goats, camelids and small animals. Also, contagious horses and other animals can be housed in Isolation and facilities for rehabilitation of small animals are provided. There is also space available for research.

Large Animal Unloading Area

Main Veterinary Facilities 1953

These four buildings provided facilities for the nascent veterinary school:

1. Veterinary anatomy was taught in the Old Anatomy building and made use of a lecture room, dissection laboratories for gross anatomy, and rooms for histology, embryology, and neurology. In 1957 anatomy teaching facilities were developed in the veterinary science building.
2. Physiology and pharmacology were taught in the TEH building (Temporary East of Hacker). The TEH building was an army barracks moved on to the campus to provide teaching facilities for second-year students.
3. Bacteriology, pathobiology, parasitology, and public health were taught in the Veterinary Science building. A lecture room was located on the first floor and laboratories were located on the second floor.

4. Post-mortem, pathobiology, and clinical pathology laboratory classes were taught in the Veterinary Clinic building. Parasitology shared the laboratory with pathology.

1957: VETERINARY DIAGNOSTIC LABORATORY

In 1957 $600,000 was appropriated by the legislature for the Veterinary Diagnostic Laboratory. This provided gross pathology facilities, microbiology, pathology and histology laboratories, and office space.

1965: VETERINARY CLINIC BUILDING

In 1965, $1,000,000 was appropriated from the legislature and $500,000 was obtained from Title l funds for an addition to the Veterinary Clinic Building. Included was a small animal surgery room, a departmental office and staff office, and a number of research laboratories.

1967: VETERINARY DIAGNOSTIC LABORATORY

An appropriation for $720,000 was requested in 1967 for additions to the Veterinary Diagnostic Laboratory. In addition to expanding diagnostic pathology and microbiological space, additional office space and research laboratories was provided.

1972: THE ANIMAL SCIENCE/VETERINARY MEDICINE BUILDING (AS/VM)

AS/VM is a four story, 127,006 assigned square foot structure of which 49,913 square feet are assigned to the College. It houses departmental offices, conference rooms, and research space for both departments. For the D.V.M. curriculum, the building houses two of the three major classrooms, and the Active Learning Classroom/histology laboratory, the Anatomy Teaching Laboratory, and a lounge and mailboxes for the first-year students. This building also houses the Minnesota Veterinary Historical Museum. The total appropriation for the building was $10 million.

1979-1982 VETERINARY CLINIC UPDATED

In 1979 the University requested $12,500,000 from the Minnesota legislature to expand and update the veterinary clinic, which was then 35 years old and inadequate for an expanded veterinary hospital program. The legislature appropriated $13,600,000 to complete the project. The college needed additional space for hospital and administrative facility space. The project included three areas: a new companion animal hospital; college administration and faculty offices; and remodeling part of the Large Animal Clinic.

The building project was completed in 1981 and provided nearly 214,000 assignable square feet. A dedication ceremony celebrated the naming of the small animal clinic the Lewis Hospital for Companion Animals. The ceremony included the governor of Minnesota, Dr. Rudy Perpich and legislative leaders. Dr. Robert Lewis, a veterinarian in private practice in Minneapolis, was serving as a Senator in the legislature and was very supportive of the building request for the Large and Small Animal Hospital. He knew how critical it was to have a modern hospital.

The small animal hospital was able to expand its programs in many specialties. This included cardiology, neurology, dentistry, oncology/radiation therapy and a seizure clinic. The hospital continued to provide emergency service, nutrition, animal behavior, dermatology, ophthalmological surgery, internal medicine, intensive care, theriogenology, and sports medicine and rehabilitation. It provided a new complementary and alternative medicine and genetic service. New facilities were provided for pharmacy, clinical pathology, and medical imaging. The appropriation provided funds to develop a modern companion animal veterinary hospital, but also provided funds to remodel the large animal hospital and added administrative, faculty and staff space.

Specialized equipment is included such as MRI magnetic resonance imaging (MRI), ultra sound scans and other imaging equipment and underwater treadmills are available for both small and large animals.

1987: GABBERT RAPTOR CENTER

A $2,380,000 gift from Don and Louise Gabbert funded the construction of the Gabbert Raptor Center in 1987, the new home of the Raptor Center, a program started by Dr. Gary Duke and Dr. Pat Redig in 1974. A groundbreaking ceremony was held on October 2, 1987, and the formal dedication of the 20,000 square foot building took place on November 10, 1988.

1990: VETERINARY DIAGNOSTIC LABORATORY

The legislature appropriated $8,467,000 to remodel and construct the Veterinary Diagnostic Laboratory. New Construction was estimated to yield 41,000 gross square feet and 18,800 assignable square feet. In addition to remodeling portions of the existing space, it provided the laboratory with a total of 32,906 assignable square feet. The Minnesota Legislature appropriated the funds to remodel and construct a new laboratory.

Dr. Mather (R) with client & veterinary student Eldon Grazin (L) in 1965

1991: VETERINARY TEACHING HOSPITAL

The VTH included the Lewis Hospital for Companion Animals, the Large Animal Hospital, Cannon Falls Field Clinic, and the Field Services for farm or herd medical services.

1992: GEORGE MATHER SMALL ANIMAL CLINIC LOBBY

On April 22, 1992 the lobby of the small animal hospital was dedicated in the memory of Dr. George W. Mather. For many years ending in 2012 his name attracted many to the annual Mather Series at the CVM. For many alumni he is remembered for the depth of his knowledge of companion animal medicine and his compassionate demeanor with clients and their animals. One alumni described him as their favorite professor because of his father-like teaching methods and delivery.[23]

[23] *CVM Class of 1960 50th Reunion Booklet 10-2010*

2002: VETERINARY MEDICAL CENTER NAMED

The Lewis Hospital for companion animals, the large animal hospital and the field services for farm or herd veterinary medical services was named the Veterinary Medical Center. In 2002-2003 hospital admissions were 40,590. The field services programs of the Veterinary Medical Center included several programs for food animals: dairy mastitis, milking machines and milk quality; dairy applied nutrition; dairy theriogenology; dairy record analysis, epidemiology and economics; infectious disease control and development of treatment protocols for dairy farms; advanced building design and herd evaluation; poultry health; swine disease diagnosis, therapy and prevention; swine production systems; small ruminant health and production; transition dairy cow management and clinical care; and zoo animal service.

2005: BEN POMEROY STUDENT-ALUMNI CENTER

In 2005 the Minnesota legislature appropriated $5.1 million to renovate a 1907 dairy barn on the campus. Construction started in April 2006, and the building was transformed into the Ben Pomeroy Student Alumni Learning Center, providing the College of Veterinary Medicine with much needed classrooms, seminar space, offices and conference rooms. Now home to the college's Academic and Student Affairs office, the renovated building opened in 2007.

Ben Pomeroy Student-Alumni Center

2006: LEATHERDALE EQUINE CENTER

After an August 2006 groundbreaking, the Leatherdale Equine Center opened in October 2007. Helping the center meet its $7.3 million fundraising goal were Doug and Louise Leatherdale of Medina, who made a generous lead gift,

and Tad and Cindy Piper, of Long Lake, who made the lead gift for the Piper Performance Clinic, a performance reproductive clinic in the facility. The University of Minnesota contributed the balance of the $14 million total cost.

Leatherdale Equine Center

2007: LINEAR ACCELERATOR AND MRI

In August 2007, the Veterinary Medical Center unveiled a new linear accelerator facility, becoming one of the only veterinary hospitals in the upper Midwest to offer state of the art radiation therapy to animals with cancer. The linear accelerator replaced cobalt radiation equipment used for nearly 25 years. The linear accelerator was a key element in the college's comparative cancer research program.
In January 2008 The Veterinary Medical Center also acquired a new 3T Magnetic Resonance Imaging or MRI machine. It was thought to be the most powerful MRI system in a veterinary hospital in the world. It is an excellent diagnostic tool and the best method for imaging neurologic disease, musculoskeletal disease, and oncologic disease.

2009: UNIVERSITY OF MINNESOTA DAIRY CENTER

New Sweden Dairy Education Center

The College entered into a partnership with Davis Family Dairies in opening the Dairy Education Center at the New Sweden Dairy. The academic unit includes 15,000 square feet of space, including a 26 bed dormitory with kitchen,

Dr. John Arnold (L) and Dr. Ben Pomeroy (R) in 1970

commons area, and laundry facilities. There are also three classrooms, a food service area, and a large research laboratory. The cost of this facility was $3,3 million.
The Center is housed under the same roof as the large dairy at New Sweden Dairy. Three thousand cows are milked in a 72 stall automated rotary parlor, and barns can accommodate 1,600 cows, including dry cows due to calve. Davis Family Dairies house 18,000 animals in five farm locations and milk 9,000 cows.

2015: RAPTER CENTER REHABILITATION PENS

The Raptor Center received a $2,000,000 grant to construct new rehabilitation pens (mews) in the Douglas Dayton Education wing. Captive raptors are safer and more comfortable in the new wing. The design and execution of the new bird housing has been ground breaking.

2015: VETERINARY CONTAINMENT BUILDING

Funds of $18 million were appropriated from the Minnesota legislature and a new isolation building was constructed that included upgraded bio containment. The building includes both bio security level-2 and bio security level-3 rooms with isolation for use with poultry and swine. There is also preparation, necropsy, and research space within the building's 31,000 square feet.

2016: MINNESOTA POULTRY TESTING LABORATORY (MPTL)

A branch laboratory of the Veterinary Diagnostic Laboratory received legislative appropriations to expand and provide additional testing capability for poultry located in Willmar. A 2015 outbreak of High Path. Avian Influenza resulted in the largest loss of animals in U.S. history, and Minnesota suffered greatly. Control of the outbreak required rapid diagnostic testing and created a major overload for the main Veterinary Diagnostic Laboratory. The

appropriation provided equipment and an additional 12,000 square feet in the Minnesota Poultry Testing Laboratory building. The project was built with an appropriation of $8.5 million.

Veterinary Containment Building

2016: SMALL ANIMAL CLINIC LOBBY AND EXAM REMODELING

Veterinary Primary and Urgent Care Center in the Veterinary Medical Center was remodeled in 2016. It included a remodeled lobby, seven examination rooms, a treatment room, round room, and additional staff offices. The project, funded by private contributions, amounted to more than $3.2 million. A major remodeling of the Small Animal Lobby and adjacent area was completed in 2017.

Chapter 25
Endowed Chairs

The Allen D. Leman Chair in Swine Health and Productivity

This chair was established in 1995 to honor a former faculty member who made significant contributions to the global swine industry and developed a team of scientists trained in production, microbiology, data analysis and epidemiology. The first person to be appointed to the chair was Dr. Thomas Blaha, an international expert in swine diseases and production from Germany. He held it from 1995 to 2003. Dr. Peter Davies, an international expert in swine epidemiology, was appointed in 2003. Dr. Davies remained in the college as a professor in the Veterinary Population Medicine Department. Dr. Montserrat Torremorell joined the college as the Leman Chair in 2009. Dr. Torremorell has an extensive background in swine health, research, and production systems, and is the author of more than 32 peer-reviewed journal articles and more than 100 abstracts in conference proceedings.

Alvin S. and June Perlman Endowed Chair in Animal Oncology

In 1999 Alvin S. and June Perlman provided funds to establish a Chair in Animal Oncology. Dr. Jaime Modiano was appointed to the chair in 2008. Dr. Modiano is an expert in this field and has co-authored more than 150 scientific papers, presentations and book chapters on various aspects of immunology, cancer cell biology, the genetic basis of cancer, and applications of gene therapy. He is also the director of the Veterinary Medical Center's Animal Cancer Center.

Ben Pomeroy Chair in Avian Health

This chair was established in 1985 in honor of Professor Benjamin Pomeroy who served 47 years at the college as a professor, department chair, and acting dean. He retired in 1983, and the Pomeroy Chair in Avian Health was created in 1985. The only endowed poultry chair in the U.S., it is associated with the College of Agricultural, Food, and Environmental Sciences and the College of Veterinary Medicine. Dr. Pomeroy's accomplishments include groundbreaking work that helped control salmonella, mycoplasma, and other potentially devastating infections that threatened the poultry industry. Dr. Jagdev Sharma was first appointed to fill this Chair in 1986 and served until he retired in 2006. Dr. Carol Cardona, an expert in avian influenza, joined the faculty in March, 2010 as the Ben Pomeroy Chair in Avian Health.

Cargill Endowed Chair in Global Food System Leadership

In 2007 the Cargill and General Mills corporations provided funds to the Center for Animal Health and Food Safety to establish a Chair for Global Food System Leadership to establish a global consortium of academic institutions to develop veterinary food safety and public health leaders. Dr. Will Hueston was appointed to the chair. Hueston, recognized as an expert in food safety, public health, and animal and public health policy formulation occupied it until December 2012. In 2014, the chair was recast as the Endowed Chair in Global Animal Health and Food Security, and Dr. Andres Perez was named to it in 2015.

The Osborne/Hill's Chair in Nephrology and Urology

This chair was established in 1998 to recognize Dr. Carl Osborne's contributions to veterinary science. Osborne was an internationally recognized expert in nephrology and urology and was the founder of the Minnesota Urolith Center, which analyzes urinary stones from animals and develops noninvasive methods for preventing and treating urinary disorders. Dr. Jody Lulich, another specialist in nephrology and urology, was the first to be appointed to the chair in 2008. He earned an international reputation as a clinical investigator and

educator in this field, and is the author or co-author of more than 415 papers published in journals, textbooks and scientific proceedings.

Tata Chair in Orthopedic Surgery

This chair was established by a $3 million gift from Ratan Tata, Head of The Tata Group, a worldwide business conglomerate based in India, to expand research and teaching in veterinary orthopedic surgery at The College of Veterinary Medicine and improved veterinary care for companion animals in India. Dr. Michael Conzemius was appointed to the Tata Chair in Orthopedic Surgery in 2008. In 2016 he was the recipient of the Stange Alumni Award for Meritorious Service from his alma mater Iowa State University.

The Patrick T. Redig Endowed Faculty Chair in Raptor and Ecosystem Health

This chair honors Dr. Redig's contributions to the Raptor Center. Dr. Victoria Hall was appointed as the inaugural holder in 2019. The previous Redig Professorship in Raptor Medicine and Surgery had eight graduates with the Ph.D. or masters degrees by 2020.

Chapter 26
Faculty Awards

CVM AWARD FOR DISTINGUISHED TEACHING AWARD

In 1964, The Dr. Carl Norden Distinguished Teacher Award was established and funded by Dr. Carl Norden. In 2011 Pfizer Pharmaceutical Company purchased Norden Company and continued supporting the Distinguished Teaching Award. For two years, it was renamed the Pfizer Distinguished Teaching Award. Pfizer Pharmaceutical Company was purchased by the Zoetis Company in 2013 and the distinguished teaching award continued to be funded as the Zoetis Distinguished Teaching Award. It is considered the most prestigious faculty teaching award. Veterinary students select the award recipient. The following are the recipients of Distinguished Teaching Awards from 1964 to 2021:

1964	Dr. Dr. Henry Griffiths	1984	Dr. Shirley Johnston	2004	Dr. Vic Cox
1965	Dr. Donald Low	1985	Dr. David Sherman	2005	Dr. Thomas Fletcher
1966	Dr. George Mather	1986	Dr. Caroline Czarnecki	2006	Dr. Leslie Sharkey
1967	Dr. Thomas Fletcher	1987	Dr. Carl Osborne	2007	Dr. Jane Quandt
1968	Dr. Victor Perman	1988	Dr. Shirley Johnston	2008	Dr. Jen Myers
1969	Dr. Everett Short	1989	Dr. Robert Hardy	2010	Dr. Tina Clarkson
1970	Dr. Kenneth Johnson	1990	Dr. Larry Wallace	2011	Dr. Leslie Sharkey
1971	Dr. Caroline Czarnecki	1991	Dr. Carlos Pijoan	2012	Dr. Robert Porter
1972	Dr. Robert Hardy	1992	Dr. Harry Momont	2013	Dr. Jody Lulich
1973	Dr. Steve Haskins	1993	Dr. Douglas Weiss	2014	Dr. Christina Clarkson
1974	Dr. Norman Wilsman	1994	Dr. David Brown	2015	Dr. Christie Ward
1975	Dr. Carl Osborne	1995	Dr. Mel Fahning	2016	Dr. Robert Porter
1976	Dr. Henry Griffiths	1996	Dr. Mary Walser	2017	Dr. Christopher Stauthammer
1977	Dr. Terrance O'Leary	1997	Dr. Carl Osborne	2018	Dr. John Collister
1978	Dr. Edward Mather	1998	Dr. Robert Hardy	2019	Dr. Roxanne Larsen
1979	Dr. Edward Usenik	1999	Dr. David Hayden	2020	Dr. Jennifer Granick
1980	Dr. Robert Hardy	2000	Dr. Anthony Tobias	2021	Dr. Erin Malone
1981	Dr. Michael Pullen	2001	Dr. Jodi Lulich		
1982	Dr. Ronald Werdin	2002	Dr. Carl Osborne		
1983	Dr. Stephen Bistner	2003	Dr. Dave Hayden		

CVM AWARD FOR RESEARCH EXCELLENCE AWARD

In 1988 the Pfizer Pharmaceutical Company funded the Pfizer Research Excellence Award for faculty in the College of Veterinary Medicine. The award includes a financial stipend. Upon the change to the Zoetis Company in 2013, the award became the Zoetis Research Excellence Award. The following researchers received this award from 1985 to 2020:

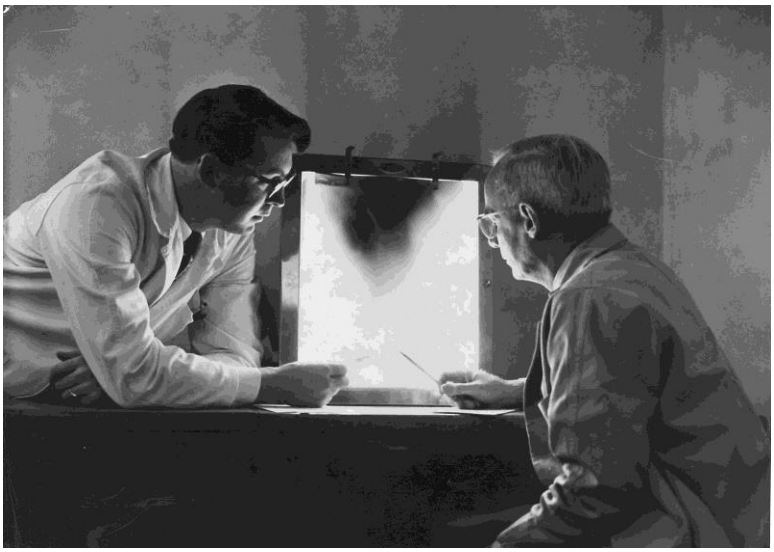
1989	Kenneth H. Johnson	2001	Stephanie J. Valberg	2013	Alvin J. Beitz
1990	Carl A. Osborne	2002	Carlos Pijoan	2014	Kent Reed
1991	Alvin J. Beitz	2003	David J. Brown	2015	Randal Singer
1992	Charles F. Louis	2004	James R. Mickelson	2016	Timothy Johnson
1993	Thomas W. Molitor	2005	Sagar M. Goyal	2017	Montse Torremorell
1994	Alice A. Larson	2006	Mitchell S. Abrahamsen	2018	Bruce Walcheck
1995	Samuel K. Maheswaran	2007	Scott A. Dee	2019	Meggan Craft
1996	Michael P. Murtaugh	2008	Michael P. Murtaugh	2020	Liz Pluhar
1997	Lawrence B. Schook	2009	Mathur S. Kannan		
1998	Han S. Joo	2010	Stephanie J. Valberg		
1999	Douglas J. Weiss	2011	Srinand Sreevatsaw		
2000	Vivek Kapur	2012	James Mickelson		

UNIVERSITY OF MINNESOTA FOR ACADEMY FOR EXCELLENCE IN THE SCHOLARSHIP OF TEACHING & LEARNING

The Academy for Excellence in the Scholarship of Teaching and Learning at the University of Minnesota recognizes faculty who have demonstrated exceptional scholarly contributions to advance learning in their schools and across academic programs in the University of Minnesota. The colleges of medicine, pharmacy, public health, dentistry, veterinary medicine, and nursing are all recognized. The CVM inductees are listed.

UNIVERSITY OF MINNESOTA AWARD FOR OUTSTANDING ACHIEVEMENT AWARDS PRESENTED TO COLLEGE OF VETERINARY MEDICINE RECIPIENTS

This award recognizes distinguished alumni who have attained unusual distinction in their professions, and demonstrated achievement and leadership on a community, state, national, or international level. Five members of the faculty have received this award between 1976 and 2015.



DR. Pritchard (L) & Dr. John Campbell (R) X-rays Reveal Susies Troubles

William R. Pritchard

May 7, 1976
A professor and dean emeritus, College of Veterinary Medicine, University of California at Davis. He received his D.V.M. from Kansas State in 1946, a doctorate from the University of Minnesota in 1953, and a doctor of jurisprudence from the University of Indiana in 1957. Pritchard's experience in tropical veterinary medicine, international agriculture development, and agriculture and veterinary law has led him around the world. He has served as an international consultant on several U.S. agriculture research and development programs and for the Rockefeller Foundation. He was a member of President Lyndon Johnson's Science Advisory Committee Panel on the World Food Supply, was chairman of the Scientific and Cultural Exchange Mission to the U.S.S.R. in 1967, and served on President Richard Nixon's Science Advisory Committee Panel on Biological and Medical Science. He received the K-State Centennial Award for Distinguished Service in 1963, an honorary Doctor of Science from K-State in 1970, and honorary Doctor of Science from Purdue University in 1977, an Outstanding Achievement Award from the University of Minnesota in 1976, and was elected to membership in the National Academy of Practice in Veterinary Medicine in 1986.

Lloyd H. Peterson

February 21, 1985
A University of Minnesota College of Agriculture graduate, a farmer, and major Minnesota turkey grower from Paynesville who served as a Regent of the University of Minnesota. He initiated and headed the two million dollar campaign to fund and endow the Pomeroy Avian Health Chair, the first funded chair in the College of Veterinary Medicine.

Charles H. Casey

June 9, 1993
A distinguished career in many roles at the University of Minnesota, Charles H. Casey graduated with his D.V.M degree in 1963 from this alma mater. He was appointed Chancellor of the University of Minnesota , Crookston (UMC) in September of 2005. Prior to 2005, he served six and one-half years as Dean and director of Extension. Casey also served on the university's Board of Regents for 12 years, including Chair of the Board for 2 years. At the College of Veterinary Medicine, he was director of Outreach for 7 years.

Kenneth H. Johnson

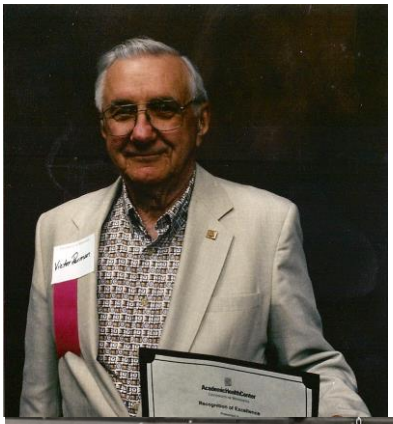
April 18, 2001

A scientist who gained international prominence in the field of amyloidosis, Johnson's research led to discoveries in the cause and treatment of diabetes mellitus. He received his bachelor's degree (1958) and his D.V.M. degree (1960) and Ph.D. (1965) in Veterinary Pathology from the University of Minnesota. He became a University of Minnesota faculty member and served as chair of the Department of Veterinary Pathobiology from 1976-83. He is described as a passionate teacher and has received numerous awards for teaching and research.

Donald G. Low

May 16, 2001
One of the founders of veterinary internal medicine. He received his Ph.D. from the College of Veterinary Medicine, University of Minnesota in 1956. He championed an evidence-based approach to diagnosing and treating small animal disorders, and is one of the charter founders of the American College of Veterinary Internal Medicine. He is recognized for his insights into the future of veterinary medical education.

Victor Perman



June 17, 2002
A veterinary clinical pathologist that taught hematology intricacies to a generations of Minnesota veterinary students, describing cellular details that revealed clinical significant information missing from automated cell counters. He graduated from the University of Minnesota three times with a bachelor degree in 1953, veterinary degree in 1955 and PhD in 1962. With Dr. Alan Rebar of Purdue University, they sent each other mystery diagnostic challenging cases with only microscopic slides, dazzling audiences at national veterinary conventions.

Dr. Poss in 1966

Peter E. Poss

August 10, 2015
Instrumental in helping Minnesota's turkey industry become the most successful in the nation, Peter E. Poss received his bachelor's degree (1953) and his D.V.M. degree (1957) from the University of Minnesota. He was known for contributions to the University, the College of Veterinary Medicine, and the veterinary profession.

René Carlson

September 10, 2019
A leader committed to collaborative participation seeking all viewpoints and backgrounds. She completed her three-year term as the first woman president of the World Veterinary Association in 2017. Previously she served in many roles with the American Veterinary Medical Association culminating.

UNIVERSITY OF MINNESOTA FOR OUTSTANDING CONTRIBUTIONS TO GRADUATE AND PROFESSIONAL EDUCATION

The Graduate and Professional award was established in 1999 to recognize contributions to graduate and professional education. Recipients are chosen for excellence in instruction; involvement of students in research, scholarship, and professional development; development of instructional programs; and advising and mentoring of students.

1999	Robert Hardy
2002	David W. Hayden
2005	Carl A. Osborne
2007	Thomas W. Molitor
2010	Alvin J. Beitz
2011	Margaret V. Root Kustritz
2013	Robert Washabau
2018	Robert E. Porter
2020	Jody Lulich

SIEHL PRIZE FOR EXCELLENCE IN AGRICULTURE

The College of Food, Agricultural and Natural Resource Sciences awards the Siehl Prize to three individuals for outstanding contributions to agriculture and the alleviation of world hunger by the development of agricultural science through teaching, research and outreach and the application of that science on the farm and in agricultural business.
Three faculty members have received this award: Benjamins S. Pomeroy (1995), Peter E. Poss (2002), and Stanley Diesch (2015).

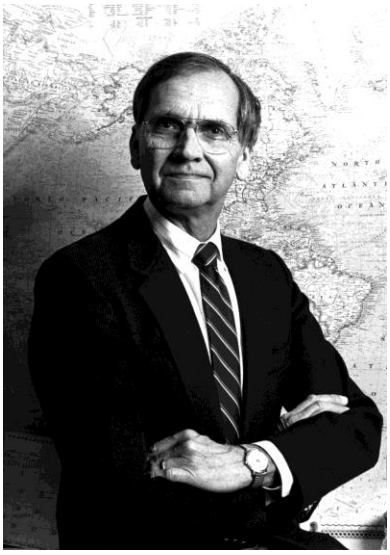
Benjamin S. Pomeroy

1999, Academic
Commercial poultry producers can attribute a period of growth and success to the accomplishments of Benjamin S. Pomeroy. Thanks to his work at the University of Minnesota's avian disease program, producers speak of once-devastating poultry diseases in the past tense. Pomeroy was always accessible to those with questions, concerns, or crises. Over the years, his rare gifts of personality, poise, and persuasion brought together government, regulatory agencies, producers, industry, communities, researchers, and others to produce for all concerned. When he began his career, producers talked of farm flocks with a few dozen birds. Today, commercial producers speak in thousands and millions. Yet, through all the times in between, Pomeroy held fast to his belief that only by working with individuals could the needs of such a dynamic industry be addressed. In 1985, Pomeroy was the inspiration that brought more than $1 million to the University of Minnesota to establish an endowed chair that bears his name.

Peter Poss

2002, Agribusiness
Peter Poss' work has been devoted to improving the health and expanding the availability of turkey year-round. During his career of more than forty years as a veterinarian and agribusiness executive with Jennie-O Foods, and more recently as a poultry consultant and farmer in Willmar, Poss has overcome some of the biggest challenges in producing turkeys in Minnesota. Bluecomb disease was the first major challenge Poss faced when he was hired as veterinarian for Jennie-O in 1965. In cooperation with the research personnel

of the College of Veterinary Medicine, he provided an approach that led to the eradication of the disease over the next five years.



Dr. Diesch

Stanley Diesch

2015, Knowledge
In 1966, Diesch was hired as a faculty member at the College of Veterinary Medicine and School of Public Health, where he worked for more than 30 years. Stanley Diesch's problem-solving ability in agribusiness is due in part to growing up on a farm in Dodge County, Minnesota. Dr. Diesch received three degrees from the University of Minnesota, a Bachelor's in agriculture, a D.V.M., and a Master's degree in Public Health. In 1984 Diesch joined the list of board-certified professional in the American College of Veterinary Preventive Medicine with a sub specialty in epidemiology. Diesch was one of the first to document serovar hardjo grippotyphosa (leptospirosis abortion in cattle), which led to a vaccine to protect cattle and farmers. He later developed the disease surveillance system which became the prototype for the National Disease Reporting System used by the U.S. Department of Agriculture.MVMA Veterinarian(s) of at the Year

MVMA VETERINARIAN OF THE YEAR AWARD

MEMBERS WHO HAVE GIVEN MUCH TO THE VETERINARY PROFESSION AS WELL AS TO THEIR COMMUNITY, THEY ARE WELL-ROUNDED AND ARE OUTSTANDING IN THE PROFESSION.

1964	Arnold J. Thompson	1984	Thomas J. Hagerty	2004	Jim Collins
1965	Donald Spangler R.S. Kufrin	1985	William D. Funk	2005	Donald B. Hicks
1966	Thomas Nankeervis	1986	Thomas F. Wetzell	2006	John Arnold Bee Hanlon Walter Mackey
1967	LeRoy T. Christensen	1987	Ronald D. Kuecker	2007	Carl Osborne
1968	Vernon K. Jensen	1988	Gene R. Kind	2008	Stephen Levine
1969	Benjamin S. Pomeroy	1989	Kenneth L. Greiner	2009	Jim Winsor
1970	Herbert H. Kanning	1990	Paul E. Zollman	2010	Dale Sorenson
1971	Fred W. Gehrman	1991	Marty E. Bergeland	2011	John Howe
1972	George G. Hartle	1992	Ralph G. Molnau	2012	Carl Jessen
1973	George W. Mather	1993	Richard S. Olson	2013	Sharon Hurley
1974	Clarence Schauderhaff	1994	Jerry D. Sprau	2014	Mike McMonomy
1975	B. Robert Lewis James V. Bundy	1995	Peter E. Poss	2015	John Baillie
1976	Robert K. Anderson	1996	Leslie J. Butman	2016	Earl Thompson
1977	Sandford B. Wilson	1997	Keith A. Friendship	2017	Richard Reierson
1978	A.O.H. Setzepfandt	1998	Bob A. Dietl	2018	John Lillie, Jr.
1979	Milton C. Stensland	1999	Jeffrey S. Klausner	2019	Trevor Ames
1980	Robert A. Martens	2000	Gary D. Neubauer	2020	
1981	James A. Libby	2002	Robert M. Hardy	2021	Joni Scheftel
1982	Stanley E. Held	2003	Pierce Fleming	2022	
1983	Charles H. Casey	1985	William D. Funk		

MVMA OUTSTANDING FACULTY AWARD

1994	Robert M. Hardy
1995	Carl A. Osborne
1996	Caroline Czarnecki Victor Perman
1997	Martin E. Bergeland Steven Stewart
1998	Mike M. Pullen
1999	Jody Lulich
2000	Beth Boynton
2001	Jim E. Collins
2002	William D. Hueston
2003	Jeff Bender
2004	Victor S. Cox
2005	Gary A. Goldstein
2006	Larry Wallace
2007	Patrick Redig
2008	Ralph Farnsworth
2009	Margaret V. Root-Kustritz
2010	Sheila Torres
2011	Sandra Gotten
2012	Stephanie Valberg
2013	Kurt Rossow
2014	Anro Wuenschmann
2015	John Fetrow
2016	Larissa Minicucci
2017	Erin Malone
2018	Laura Molgaard
2019	Tim Goldsmith
2020	
2021	Ned Patterson
2022	Julie Churchill

AVMA EXCELLENCE AWARDS

THE AMERICAN VETERINARY MEDICAL ASSOCIATION (AVMA) AWARDS SEEK TO RECOGNIZE CONTRIBUTIONS TO THE VETERINARY PROFESSION AND TO ANIMAL HEALTH & WELFARE. THIS LIST INCLUDES DVM GRADUATES OF THE CVM.

1952	Charles E Cotton	Bustad Companion Animal Veterinarian of the Year
1971	WTS Thorp	Karl F Meyer-James H Steele Gold Head Cane Award
1977	Carl A Osborne	Karl F Meyer-James H Steele Gold Head Cane Award
1980	Benjamin T Pomeroy	AVMA Practitioner Research Award
1987	Robert K Anderson	AVMA President's Award
1987	Stanley L Diesch	AVMA President's Award
1988	Victor Perman	AVMA President's Award
1990	Donald E Johnson	AVMA President's Award
1998	Scott A Dee	AVMA Public Service Award
1998	Stanley L Diesch	AVMA Public Service Award
2000	Stanley E Held	AVMA Public Service Award
2003	Thomas J Hagerty	AVMA Public Service Award
2005	William D Hueston	AVMA Public Service Award
2006	Marguerite Pappaioanou	Royal Canin Award
2007	Michael M Pullen	Royal Canin Award
2020	William Maher	X11th International Veterinary Congress Prize
2020	John M Kruger	X11th International Veterinary Congress Prize
2020	Bonnie V Beaver	X11th International Veterinary Congress Prize
2021	René A Carlson	AVMA Lifetime Excellence in Research Award
2021	Mark E Carlson	AVMF/Winn Feline Foundation Research Award
2021	Mark Earl Peterson	AVMA Lifetime Excellence in Research Award

Chapter 27
Data Tables

PROFESSIONAL EDUCATION CURRICULUM IN 1947-51

First Year	Second Year
Agro. 31, Principles of Genetics, 4 credits	V.M. 122-123, Animal Bacteriology, 10 credits
V.M. 101-102-103, Animal Anatomy, 16 credits	V.M. 135-136, Animal Physiology, 15 credits
V.M. 111-112-113, Animal Histology and Embryology, 15 credits	V.M. 151-152-153, Animal Pathology, 15 credits
V.M. 121, Animal Bacteriology, 5 credits	V.M. 161-162, Animal Parasitology, 10 credits
Ph. Ch. 102-103, Physiological Chemistry, 12 credits	V.M. 170, Veterinary Clinical Diagnosis, 3 credits
	V.M. 101, Introduction to Pharmacology, 2 credits
	Po. Hu. 153, Poultry Nutrition and Feeding, 3 credits

THIRD YEAR	FOURTH YEAR
V.M. 106, Veterinary Surgical Anatomy, 1 credit	V.M. 125, Poultry Diseases, 3 credits
V.M. 143, Veterinary Clinical Pharmacology, 3 credits	V.M. 126, Dairy Hygiene, 4 credits
V.M. 154, Veterinary Clinical Pathology, 2 credits	V.M. 127, Veterinary Public Health, 2 credits
V.M. 171a-171b-171c, Clinical Conference, 3 credits	V.M. 155, Meat Hygiene 3 credits
V.M. 172, Animal Surgery, 6 credits	V.M. 168, Diseases of Fur Bearing Animals, 2 credits
V.M. 173, Special Animal Surgery, 5 credits	V.M. 169, Veterinary Jurisprudence & Business Methods, 2 cr
V.M. 174, Advanced Animal Surgery, 3 credits	V.M. 171d-171e-171f, Clinical Conference, 3 credits
V.M. 177-178-179, Large Animal Medicine, 15 credits	V.M. 180-181, Infectious Diseases of Domestic Animals, 10 cr
V.M. 185, Small Animal Medicine, 4 credits	V.M. 186, Small Animal Medicine, 4 credits
V.M. 188-189-190, Clinical and Laboratory Practice, 15 credits	V.M. 191-192-193, Clinical and Laboratory Practice, 15 credits.
V.M. 194, Veterinary Obstetrics and Reproduction, 3 credits	V.M. 195, Veterinary Obstetrics & Reproduction, 5 credits
Pharm. 105, General Experimental Pharmacology, 6 credits	V.M. 196, Veterinary Radiology, 3 credits
An. Hu. 57, Livestock Feeding, 3 credits	V.M. 197, Animal Diseases and Poison Plants, 3 credits
	V.M. Dy, Hu, 118, Milk Production and Secretion, 3 credits

COMPARISON OF PROFESSIONAL EDUCATION CURRICULUM IN 1963 VS. 1971

DEPARTMENT OF VETERINARY ANATOMY (VAna) REQUIRED COURSES	
1963	**1971**
100: Orientation for veterinary students, 1 credit	5-201: Anatomy of the dog, 5 credits
101: Anatomy of the dog, 7 credits	5–202: Veterinary comparative anatomy, 5 credits
103: Anatomy of ruminants, 3 credits	5–230: Veterinary neuroanatomy, 3 credits
106: Veterinary surgical anatomy, 1 credit	5–250: Comparative prenatal dev. of domestic animals, 3 credits
130: Veterinary neuroanatomy, 3 credits	5–261: Microscopic anatomy of domestic animals, 3 credits
150: Comparative prenatal dev. of domestic animals, 4 credits	5–262: Microscopic anatomy of domestic animals, 4 credits
151: Microscopic anatomy of domestic animals, 3 credits	5–263: Microscopic anatomy of domestic animals, 4 credits
152: Microscopic anatomy of domestic animals, 4 credits	5–406: Veterinary clinical anatomy, 3 credits
153: Microscopic anatomy of domestic animals, 5 credits	5–407: Topics in clinical anatomy, 1 credit
154: Morphology of animal cells & intercellular substs, 3 credits	
190: Seminar in veterinary anatomy, 1 credit	

DEPARTMENT OF VETERINARY BACTERIOLOGY AND PUBLIC HEALTHD (VBac) REQUIRED COURSES	
1963	**1971**
53: Gen. microbiology lectures & lab., 5 credits	5–101: Gen. vet. bacteriology & immunology, 5 crs
101: Gen. vet. bacteriology & immunology, 6 crs.	5–102: Pathogenic bacteria and fungi, 5 credits
102: Pathogenic bacteria and fungi, 6 credits	5–103: Veterinary virology, 5 credits
103: Veterinary virology, 4 credits	5–210: Veterinary epidemiology, 4 credits
125: Veterinary public health, 4 credits	5–220: Veterinary public health, 4 credits
126: Veterinary public health, 3 credits	5–331: Poultry diseases, 3 credits
127: Veterinary public health, 2 credits	5–101: Gen. vet. bacteriology & immunology, 5 crs
128: Problems in veterinary bacteriology and public health, Credits arranged	
131: Poultry diseases, 4 credits	

DEPARTMENT OF VETERINARY MEDICINE AND CLINICS (VMC) REQUIRED CLASSES

1963	1971
101: Veterinary physical diagnosis, 4 credits	5–101: Veterinary physical diagnosis, 2 credits
102: General veterinary medicine, 4 credits	5–102: Diagnostic & therapeutic techniques, 2 credits
103: Large animal medicine, 4 credits	5–103: Diagnostic & therapeutic techniques, 1 credits
104: Large animal medicine, 5 credits	5–201: Large animal medicine, 5 credits
106: Small animal medicine, 5 credits	5–202: Large animal medicine, 7 credits
107: Small animal medicine, 4 credits	5–203: Large animal medicine, 6 credits
110: Clinics (for third-year vet. med.), 5 credits	5–301: Small animal medicine, 3 credits
111: Clinics (for third-year vet. med.), 5 credits	5–302: Small animal medicine, 4 credits
112: Clinics (for third-year vet. med.), 5 credits	5–303: Small animal medicine, 3 credits
114: Clinical conference ((for third-year vet. med.), 1 cr	5–501, 5–502: Clinics, No credits
115: Clinical conference (for third-year vet. med.), 1 cr	5–510 or 5-511: Clinics, 9 credits
116: Clinical conference (for third-year vet. med.), 1 cr	5–512: Clinics, 8 credits
121: Clinics (4th-year vet. med.), 3 credits	5–513: Clinics, 8 credits for 5–513 5–510, 5–511, 5–513 inc. clinical application of public health.
122: Clinics ((4th-year vet. med.), 5 credits	5–520: Special clinics, 8 credits
123: Clinics (4th-year vet. med.), 5 credits	5–530, 5–531, 5–532: Clinic rounds, No credit
124: Clinics (4th-year vet. med.), 5 credits	5–401: A survey of law & business methods, 3 cr
126: Clinical conference (4th-year vet. med.), 1 credit	
127: Clinical conference (4th-year vet. med.), 1 credit	
128: Clinical conference (4th-year vet. med.), 1 credit	
130: Veterinary jurisprudence and business methods, 3 credits	
131: Infectious diseases of large animals, 5 credits	
132: Preventative veterinary medicine, 5 credits	
137: Animal diseases & poisonous plants, 3 credits	

DEPARTMENT OF VETERINARY OBSTETRICS AND GYNECOLOGY (VObs) REQUIRED COURSES

1963	1971
101: Veterinary obstetrics, 4 credits	5–001: Veterinary obstetrics, 4 credits
102: Animal reproduction, 4 credits	5–103: Clinical diagnosis in animal reproduction, 4 credits
	5–211: Reproductive diseases of domestic animals, 4 credits
	5–311: Herd health management of dairy cattle, 3 credits
	5–312: Herd health management of beef, cattle, swine, sheep and horses, 3 credits
	5–405: Reproduction/infertility in the horse,1 cr
	5–505: Reproductive patterns/infertility in the dog & cat, 1 cr

DEPARTMENT OF VETERINARY PHYSIOLOGY & PHARMACOLOGY (VPP) REQUIRED COURSES

1963	1971
105,106,107,108: Animal physiology. (5 credits for 105 (lecture), 2 credits for 106 (lab)	5-150: Animal physiology(lecture), 4 credits
107: Animal physiology(lecture), 3 credits	5-160: Animal physiology(lab), 2 credits
107: Animal physiology(lecture), 3 credits	5–170: Animal physiology(lecture), 3 credits
108: Animal physiology(LAB), 2 credits	5-180: Animal physiology(lab), 2 credits
109: Physiology of the endocrine & reproductive systems, 3 credits	5–310: Mammalian endocrinology & reproduction, 3 credits
120: Seminar in animal physiology, 2 credits	5–650: Veterinary pharmacology, 6 credits
130: Problems in animal physiology, cr. arr.	5–660: Veterinary pharmacology, 4 credits
151: Veterinary pharmacology, 5 credits	5-960: Veterinary toxicology, 3 credits
152: Veterinary pharmacology, 3 credits	

153: Veterinary pharmacology, 3 credits

161: Seminar in veterinary pharmacology, cr. arr.

171: Problems in veterinary pharmacology, cr. arr

OPTIONAL COURSES IN 1971

Department of Veterinary Anatomy (VAna)

5–120: Essentials of vertebrate development and structure, 5 credits

5–140: Comparative vertebrate microscopic anatomy, 5 credits

5–534: Canine clinical neurology, 1 credit

Department of veterinary medicine (VM)

5–210: Herd health management of dairy cattle, 3 credits

5–211: Herd health management of beef, cattle, swine, sheep and horses, 3 credits

5–215: Prevention and control of bovine mastitis, 1 credit

5–220: Poisonous plants, 1 credit

5–230: Diseases of zoo animals and exotic pets, 1 credit

5–320: Hospital management, 1 credit

5–325: Veterinary ophthalmology, 2 credits

5–335: Diseases of the kidney, 1 credit

5–336: Diseases of the liver and pancreas, 2 credits

5–340: Small animal dermatology, 2 credits

OPTIONAL COURSES IN 1971

Department of Veterinary Microbiology and Public Health (VMic)

5–300: Poultry disease control, 3 credits

5–320: Comparative medicine and public health, 2 credits

5–332: Poultry disease prevention and nutrition, 3 credits

5–410: Problems in veterinary bacteriology and public health, credits arranged

5–520: Veterinary science, 3 credits

Department of veterinary obstetrics and gynecology (VObs)

5–105: Infertility clinics, credits arranged

5–120: Heredity in animal disease, 3 credits

5–305: Breeding patterns breeding technology & infertility in cattle, 2 credits

5–310: Reproduction and infertility in the bull, 1 credit

5–324: Reproduction and infertility in swine, 1 credit

Department of Veterinary Physiology in Pharmacology (VPP)

5-121: Small animal orthopedics, 3 credits

5–231: Large animal orthopedics, 2 or 3 credits

5–402: Investments and insurance, 1 credit 5–410: Preventative medicine and applied immunology, 2 credits 5–535: Externship seminar, 1 credit 5–790: Seminar - world food supply problems, 4 credits	5–241: Abdominal surgery in the bovine and equine species, 2 credits 5–251: Surgical diseases of the mammary gland, 2 credits 5–301: Heredity and animal disease, 3 credits, 5–421: Roentgen diagnosis of diseases in the skeletal system of small animals, 1 credit 5–431: Roentgen diagnosis of diseases in the skeletal system of large animals, 1 credit 5–440: Canine cardiology, 1 credit
Department of Veterinary Microbiology and Public Health (VMic) 5–230: Laboratory animal medicine, 2 credits, 5–240: Epidemiology of zoonoses I, 1 credit 5–241: Epidemiology of zoonoses II, 1 credit	
Department of veterinary pathology and parasitology (VPaP) 5–103: Parasites of wildlife, 3 credits 5–104: Diseases of wildlife, 3 credits 5–301: Diseases of the kidney, 1 credit 5–302: Diseases of the pig, 2 credits 5–303: Infectious and non-infectious diseases of the cat, 1 credit 5–306: Tumors of domestic animals, 1 credit	**Department of veterinary pathology and parasitology (VPaP)** 5–307: Diseases of the central nervous system, 2 credits 5–308: Diseases of furbearing animals, 2 credits 5–309: Diagnostic poultry pathology, 2 credits 5–310: Diagnostic gross pathology of infectious disease in large animals, 2 credits 5–311: Diseases of the liver and pancreas, 2 credits

PROFESSIONAL EDUCATION PROGRAM FOR 1975 - 1977

FOLLOWING IS A LISTING OF THE NEWLY REVISED PROFESSIONAL CURRICULUM:

First Year Credits			
First year	**Fall**		**16 Total Credits**
VB 5100	Anatomy of the dog	5 credits	
VB 5103	Comparative prenatal develop. domestic animals	3 credits	
VB 5104	Microscopic anatomy of domestic animals	4 credits	
VB5200	Biochemistry	6 credit	
	Winter		**19 Total Credits**
VB 5101	Veterinary comparative anatomy	5 credits	
VB 5105	Microscopic anatomy of domestic animals	4 credits	
VB 5104	Biochemistry	6 credits	
VB 5200	Genetics	4 credits	
	Spring		**16 Total Credits**
VB 5102	Veterinary neuroanatomy	3 credits	
VB 5106	Microscopic anatomy of domestic animals	3 credits	
VB 5306	Animal physiology	4 credits	
VB 5307	Animal physiology lab	2 credits	
VCS 5650	Veterinary epidemiology	4 credits	

Second Year Credits			
	Fall		**20 Total Credits**
VB 5308	Animal physiology	3 credits	
VB 5309	Animal physiology lab	2 credits	
VB 5501	General veterinary pathology	5 credits	
VB 5601	Veterinary parasitology	5 credits	
VB 5701	General veterinary microbiology and immunology	5 credits	
	Winter		**21 Total Credits**
VB 5310	Mammalian endocrinology and reproduction	3 credits	
VB 5400	Veterinary pharmacology	4 credits	
VB 5502	Special veterinary pathology	5 credits	
VB 5602	Veterinary parasitology	4 credits	
VB 5702	Pathogenic bacteria and fungi	5 credits	
	Spring		**18 Total Credits**
VB 5401	Veterinary pharmacology	4 credits	
VB 5503	Special veterinary pathology	4 credits	
VB 5504	Better clinical pathology	3 credits	
VB 5703	Veterinary virology	5 credits	
VCS 51540	Better physical diagnosis	2 credits	

Third Year Credits

	Fall		**23 Total Credits**
VB 5126	Veterinary clinical anatomy	3 credits	
VB 5402	Veterinary chemotherapy	2 credits	
VCS 5160	Large animal medicine	6 credits	
VCS 5170	Small animal medicine	4 credits	
VCS 5350	Principles of veterinary surgery	4 credits	
VCS 5380	Anesthesiology	2 credits	
VCS 5560	Clinical diagnosis animal reproduction	2 credits	
	Winter		**20-22 Total Credits**
VCS 5151	Diagnostic and therapeutic techniques	2 credits	
VCS 5161	Large animal medicine	6 credits	
VCS 5171	Small animal medicine	3 credits	
VCS 5351	Veterinary surgery	5 credits	
VCS 5450	Veterinary radiology	3 credits	
VCS 5561	Lab procedures Theriogenology	2 credits*	
VCS 5750	Clinics	1 credit	
	Spring		**21 to 23 Total Credits**
VCS 5152	Diagnostic and therapeutic techniques	1 credit	
VCS 5162	Large animal medicine	6 credits	
VCS 5172	Small animal medicine	4 credits	
VCS 5352	Veterinary surgery	3 credits	
VCS 5355 or	Large animal surgery lab	1 credit	
VCS 5356	small animal surgery lab	1 credit	
VCS 5550	Veterinary obstetrics	4 credits	
VCS 5561	Lab procedures theriogenology	2 credits*	
VCS 5751	Clinics	2 credits	

Fourth Year Credits			
	Summer		**6 Total Credits**
VCS 5760 or	Clinics seven week session	6 credits	
VCS 5761	Clinics seven week session	6 credits	
	Fall		**17 Total Credits**
VCS 5165	Veterinary toxicology	3 credits	
VCS 5180	Preventative medicine and applied immunology	2 credits	
VCS 5570	Reproductive diseases of domestic animals	4 credits	
VCS 5762	Clinics	8 credits	
	Winter	8 credits	**18 Total Credits**
VB 5704	Avian diseases		
VCS 5270	Survey of law and business methods		
VCS 5651	Veterinary public health		
VCS 5763	Clinics		
	Spring		**8 Total Credits**
VCS 5770	Special clinics	8 credits	

COMPLETION OF AT LEAST 17 CREDITS IN ADDITION TO THE COURSES LISTED ABOVE IS REQUIRED. A MAJOR PORTION OF THESE CREDITS IS MET BY THE OPTION CHOSEN BY EACH STUDENT AS FOLLOWS:

Optional Tract Fourth Year Credits			
	Mixed animal option		**9 Total Credits**
AnSc 5404	Ruminant nutrition	3 credits	
VCS 5181 or	Herd health management of dairy cattle	3 credits	
VCS 5182	Herd health management of beef cattle, swine, sheep, and horses	3 credits	
VCS 5273	Economics in veterinary medicine	2 credits	
VCS 5785	Externship seminar	1 credit	
	Large animal option		**15 Total Credits**
AnSc 5404	Ruminant nutrition	3 credits	
AnSc 5606	Beef production	3 credits	
or	Dairy farm management	3 credits	
AnSc 5607	Herd health management of dairy cattle	3 credits	
VCS 5181	Herd health management of beef cattle, swine, sheep, and horses	3 credits	
VCS 5182	Economics in veterinary medicine	2 credits	
VCS 5273	Externship seminar	1 credit	
VCS 5785			
	Small animal option		**13 Total Credits**
VB 5134	Canine clinical neurology	1 credit	
VB 5512	Infectious and non-infectious diseases of the cat	2 credit	
VCS 5250	Small animal dermatology	2 credits	
VCS 5260	Veterinary ophthalmology	2 credits	
VCS 5265	Comparative clinical cardiology	2 credits	
VCS 5271	Hospital management	1 credit	
VCS 5360	Small animal orthopedics	3 credits	
VCS 5660	Epidemiology of zoonosis in companion animals	1 credit	

STUDENT DATA 1990-2004

	Applied	Accepted	GPA	Graduated	Total Enrollment
1988-89	295	67	3.52	77	
1989-90	244	62	3.48	68	259
1990-91	248	72	3.42	61	251
1991-92	302	72		61	265
1992-93	423	72		55	278
1993-94	482	76		73	298
1994-95	520	76		76	299
1995-96	490	76		72	293
1996-97	1168	76			295

STUDENT DATA 1990-2004

	Applied	Accepted	GPA	Graduated	Total Enrollment
1998-99	1167	76		69	
1999-2000				78	303
2000-01	927	80		74	302
2001-02	676	80		74	
2002-03		80		75	306
2003-04				78	

SA Clinical Rotations	Food Animal Clinical Rotations	Equine Rotational Services
Behavioral Cardiology	Biosecurity	Equine Theriogenology Introduction
Community Practice	Bovine Surgery	Equine Theriogenology Advanced
Companion Bird	Cow Calf Herd Health & Production	**Comparative Services Clinical Rotations**
Critical Care	Dairy Applied Nutrition	Anesthesiology
Dermatology -A	Dairy Mastitis & Milking Machines	Business Aspects of Veterinary Practice
Elective Small Animal Surgery	Dairy Records	Hematology/Cytology
Emergency Medicine Neurology	Dairy Theriogenology Management	Hematology/Cytology/Microbiology
Oncology	Dairy Palpation	Large Animal Anesthesia
Small Animal Medicine - A	Epidemiology & Biostatistics	Zoological Medicine
Small Animal Medicine - B	Advanced Feedlot Herd Health	Necropsy
Small Animal Medicine - C	Reproduction/Delivery Management	Ophthalmology
Small Animal Medicine - D	Ruminant Nutrition	Practice Readiness
Small Animal Surgery	Swine Disease Diagnosis & Therapeutics & Prevention	Public Health – A AND B
Small Animal Theriogenology	Small Ruminant Health & Production	Radiology
Small Animal Ultrasound	Swine Production Training	Raptor Center
Veterinary Dentistry Rotation	Transition Dairy Cow Management	
	Transition Management Facilities 2	
LA General Rotational Services	**Equine Rotational Services**	**Other Rotations for Clinical Services**
Large Animal	Equine Dentistry	Directed Studies – Pathobiology
Medicine Large	Equine Lameness	Directed Studies – Large Animal
Animal surgery	Equine Podiatry	Directed Studies – Diagnostic Medicine
Large Animal Diagnostic	Equine Surgery	Directed Studies – Small Animal
	Equine Sports & Preventive Medicine	Preceptorships

CLINICAL SERVICE ROTATIONS IN 1997

TOTAL CASES 1990-2004

	Small Animal Hospital			Large Animal Hospital		
FY	**Admissions**	**Hospital Cases**	**Outpatient**	**Admissions**	**Hospital Cases**	**Outpatients**
1989-90	13,591	4,114	8,905	1,545	1,077	468
1990-91	15,832	3,205	10,545	1,478	3,205	399
1991-92	15,239	3,435	11,800	1,578	993	583
1992-93	15,262	2,982	12,281	1,827	1,782	45
1993-94	16,868	3,015	13,753	1,976	1,725	251
1995-96	18,142	3,826	14,316	2,140	807	1,333
1996-97	18,835	3,106	15,729	2,256	1,437	819
1999-2000	22,106	4,479	25,081	2,881	1,688	1,194
2000-01	31,878	4,144	25,909	3,014	1,309	1,705
2003-04	41,724	7,535	34,435	2,180	720	1,345

TOTAL CASES 2011-2015

Year	Small	Large	Equine	Other
2011	30,827	383	3,056	26
2012	31,085	431	3,086	21
2013	30,813	471	3,153	29
2014	30,055	509	3,420	35
2015	32,309	366	3,767	50

EXTENSION CASES 1990-2000

FY	Bovine Fertility Examinations		Dairy & Beef		Swine		Equine		Exotic Animals	
	Herds	Animal Exams	Herds	Animal Exams	Herds	Animal Exams	Herds	Animal Exams	Herds	Animal Exams
1989-90	410	7992	292	8472	11	NA	539	1043	120	1792
1990-91	334	7670	177	6776	16	NA	638	1291	140	2171
1991-92	337	9228	216	8821	28	3431			108	2327
1993-94	289	9224	140	3529	7	30	33	54	128	2321
1995-96	257	8640	6	3529					34	2321
1996-97	19	8520	65	2025	7	30				
1999-2000	13	7185								

TUITION

Tuition for students in the professional veterinary program, including student services and lab fees, as published in the University's *Bulletins*. The change in tuition was primarily affected by the level of financial support appropriated each year to the University of Minnesota by the state. Typically, the level of financial support decreased every biennium, though the cost of the professional teaching program increased. The estimated cost of a microscope was listed separately in the *Bulletins*; it was replaced by the cost of a laptop computer in 1997.

Year	Resident annual tuition	Non-resident annual tuition	Year	Resident annual tuition	Non-resident annual tuition
1948-49	$105.00	$225.00	1971-73	$882.00	$1,941.00
1949-50	$195.00	$390.00	1975-76	$800.00	$4,200.00
1950-51	$195.00	$390.00	1977-78	$2,055.00	$5,226.00
1951-52	$195.00	$390.00	1979-80	$2,424.00	$6,303.00
1952-53	$205.00	$465.00	1983-04	$3,797.70	$7,357.00
1953-54	$205.00	$465.00	2004-05	$7,895.00	$15,790.00
1954-55	$228.00	$495.00	2005-06	$8,424.00	$16,848.00
1955-56	$228.00	$495.00	2006-07	$8,972.00	$17,650.00
1956-57	$255.00	$600.00	2007-08	$9,599.50	$18,928.50
1957-58	$270.00	$615.00	2008-09	$10,307.00	$19,636.00
1958-59	$285.00	$630.00	2009-10	$11,073.00	$21,098.00
1959-60	$285.00	$630.00	2010-11	$11,904.00	$22,677.00
1960-61	$330.00	$735.00	2011-12	$13,300.00	$24,720.00
1961-62	$330.00	$735.00	2012-13	$13,832.00	$25,709.00
1962-63	$375.00	$870.00	2013-14	$14,247.00	$26,480.00
1963-64	$420.00	$930.00	2014-15	$14,247.00	$26,480.00
1967-69	$550.50	$1,231.50	2015-16	$14,600.00	$26,879.00
1969-71	$735.00	$1,659.00			

CVM GRADUATE ENROLLMENT 1988 - 2003

Academic Year	Total Number of Graduate Students	Number of International Students
1988-89	120	48
1989-90	138	59
1990-91	134	52
1991-92	130	48
1992-93	128	45
1993-94	120	44
1994-95	120	45
1995-96	120	62
1996-97	118	65
1997-98	95	54
1998-99	127	67
1999-2000	97	47
2000-01	98	56
2001-02	113	59
2002-03	102	62
2003-04	113	64