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Center for Veterinary Critical Care Established

When the Veterinary Hospital of the University of Pennsylvania (VHUP) opened in 1981, the Emergency Service (ES) case load was less than 1,000 annually. Today about 40 percent of VHUP's patients require specialized care that involves the Emergency Service, Intensive Care Unit (ICU) and the Anesthesia Service, reflecting the hospital's role as a regional critical care referral center for companion animals. The annual case load has grown to more than 8,000 in ES and over 1,200 in ICU.

To even better serve the patients' needs, the School, in November 1990, created the Center for Veterinary Critical Care (CVCC), a multi-disciplinary unit within the Department of Clinical Studies at Philadelphia. The Center encompasses six faculty positions, two each from anesthesia, ICU and ES, as well as residents, nurses, technicians, students, and staff from each of the three services.

Veterinary emergency and intensive care have made great strides in the last few years, paralleling developments in human medicine. By establishing the CVCC, the first wholly integrated veterinary critical care unit in the world, Penn's Veterinary School is able to enhance and advance veterinary critical care. The Center fosters closer interaction between clinicians of the different services and facilitates a smoother transfer of cases from one service to another. Further, through the continual involvement of the various clinicians in patient care at all three levels, more efficient coordination of treatment is achieved. The training program for students and residents is enhanced as the three services function as one unit.

The Emergency Service at VHUP is staffed 24 hours a day by specially trained nurses, residents, faculty and students, seven days a week. This independent unit is equipped to provide acute care including CPR, oxygen support and ventilation, EKG, both direct and indirect blood pressure monitoring, laboratory work, radiology and minor surgery. Emergency surgery is performed by surgery and anesthesia staff on call.

The Intensive Care Unit provides care to the sickest patients admitted through Emergency Services or other hospital services. It is staffed by specially trained nurses around the clock, seven days a week. The unit is equipped, and the nurses trained, to provide CPR, ventilation, peritoneal dialysis, parenteral or enteral nutrition, direct blood pressure monitoring, stat laboratory work, including arterial blood gases, and all routine support. It is, at this point, one of the most sophisticated Intensive Care Units at a veterinary hospital anywhere. In addition to the nursing staff, two full-time medicine faculty work in the ICU exclusively, as well as a resident and students. The anesthesia faculty provide additional supervision for surgery cases. Residents in critical care veterinary medicine train in the Emergency Service, the Intensive Care Unit and rotate through anesthesia, medicine, cardiology and surgery. The residency program is three years in length.

In addition to even better patient care, the CVCC provides enhanced teaching for students and residents. Daily rounds are presented in each service and weekly combined ICU-ES care rounds are held to discuss cases seen in both services. These rounds involve staff from ICU, ES, cardiology, anesthesia, medicine, and surgery. There are also regularly scheduled critical care seminars where the critical care faculty and residents discuss ongoing research and topics of common interest, and assess new approaches to clinical problems.

The CVCC is co-directed by Dr. Joan Hendricks, associate professor of medicine, and Dr. Alan Klide, associate professor and chief, section of anesthesia.
Scholarship Program in Veterinary Public Service Established

Robert F. Fairchild, New York, NY, has established the Lois F. Fairchild Scholarship Program in Veterinary Public Service at the School of Veterinary Medicine of the University of Pennsylvania.

The scholarship program, in honor of Mr. Fairchild's mother who cared greatly for animals and their welfare, is the first such program in a veterinary school. It is designed to encourage veterinarians to enter the field of public practice or service as a career goal.

Mr. Fairchild's motive to establish the endowment stemmed from the blending of his family's lifelong interests, coupled with a suggestion made by the family veterinarian, who commented that "the veterinary profession needs to attract young people to public service, where their skills are critically needed." During their lives, his father was deeply committed to education, while his mother was devoted to animals. Mr. Fairchild, as an alumnus of The Colonial Club of Arts and Sciences, has close ties with the University.

The endowment, which comes from the estate of Mr. Edgar W. B. Fairchild, provides for tuition aid for one junior and one senior student who have a strong commitment to public service. Scholarship recipients are required to practice in the public sector for at least one year following graduation. Areas of employment include such diverse areas as: epidemiology/public health; direct animal care for humane/SPCA organizations; and, World Health Organization.

"We are enthusiastic about the Lois F. Fairchild Scholarship Program in Veterinary Public Health," said Dean Edwin J. Andrews. "We are committed to broadening the ways in which veterinary medicine is integrated into a global society and this program challenges us to expand our collective recognition and understanding of the importance of veterinary medicine, and in turn, to teach and persuade others about its value."

From the Dean

Each year, individual, as well as societal perceptions of the world around us change; it has been argued that "perception is reality." Yet a major change in society is our perception of our relationship with animals. Just as we have become more aware of our environment, more accepting of other cultures and norms, and more willing to challenge dogma and the status quo, so too have we focused on our responsibilities toward animals.

The following is a quotation from a recent report of a working party for the Council for Science and Society in Great Britain. The quotation is found in a Ms. operational Animals in Society, published by the Oxford University Press (1988). "It is one of the moral assumptions of our society (and of many others) that a duty exists to protect animals. We must address, therefore, the limits on what may be done to them in order to satisfy human needs and desires. It is not necessary to invest animals with rights in order to assert and enforce that duty. The duty arises from the intellectual and moral perceptions which are a product of human nature."

Proposed State Funding Cuts

Governor Casey's proposed reduction in the University's state appropriation has forced Penn to plan adjustments in its FY '92 budget, University President Hackney said. The adjustments, he announced, mean postponement of new construction and renovation, some reduction in faculty and staff, and a tuition increase a bit larger than planned.

The governor proposed a 49 percent cut—$18.6 million—in Penn's FY 92 appropriation, which was to have been $37.6 million. "The risk to the University is real and it requires important programmatic and financial choices. But above all, the academic mission and quality of the University must be preserved," Hackney pledged. "We are committed to the full appropriation the University will only one in the Commonwealth lose nearly $7 million of its appropriation. For one year, the University will underwrite the vet school" by absorbing nearly $6 million of the shortfall, Hackney pledged. "But if the appropriation is not restored, we will have to decide whether we can afford to continue the school's operations."

We will aggressively seek restoration of the full appropriation to the University, which was to have matched the FY '91 level," Hackney said. "However, we must address this difficulty with the assumption that the cuts may not be restored and that, given the climate in Harrisburg, the entire appropriation may be at risk over the next few years."

Hackney outlined Penn's plan to accommodate the proposed appropriations cut. At least 300 positions will be cut, beginning immediately and continuing through 1992. The reduction in Penn's workforce, to be carried out by each school and administrative area, will be achieved through a combination of attrition, reassignment, retirement, and layoffs, all directly related to cuts in programs and services.

The University also needs to plan for a $6 million deficit in FY '92, brought about by the proposed appropriations cut; it will be Penn's first unbalanced budget in 15 years.

The Commonwealth's appropriation process begins with the Governor's proposals and continues over the next several months. Legislative committees take testimony, consider their own preferences, negotiate compromises, and eventually agree on amounts acceptable to both the Senate and House. Given the Commonwealth's grim financial picture and Governor Casey's stark proposal, the process may not be completed until late fall, after the first semester of the 1992-93 academic year is well under way.

Our alumni, friends, and clients will hear from the School shortly. We will ask that they contact their state legislators to point out how devastating the proposed cuts are to the Veterinary School. Since the state appropriation for FY 91 is $15 million, the proposed $7 million cut for FY 92 from an operating budget of $45 million is catastrophic. We need your help. We hope you will assist us by writing your state representatives in Harrisburg and tell them how important the School is, not only to you, but also to the Commonwealth. [reprinted in part from Compass, Vol. 2, No. 13]
The Applicants - Past, Present and Future

Fall 1960. His crew-cut head droops over the biochem text that rests on his chin. He's studying enzyme kinetics, but his attention wanders to the television screen, where John F. Kennedy and Richard M. Nixon are debating in black and white. This veterinary student is one of a class of 56 men and two women, the elite 30 percent chosen from the applicants.

Fall 1975. The freshman, one of 54 men and 44 women, faced roughly twelve-to-one competition for his spot, and this is the third time he applied. While waiting for admission, he earned a master's in biochemistry, which he used to get time to watch Watergate criminals wave from prison. Margaret Thatcher takes over the British Conservative Party and the color red covers the screen in jaws.

Fall 1990. The typical student is a she, not a he. Murphy Brown is a role model and the tv debate is about colorizing Lassie. She is studying biochem, trying to decipher gluconeogenesis, but since she majored in journalism, she wonders if she could have written the textbook better. She is one of 111 students representing 42 percent of the applicants.

Malcolm "Mac" Keiter, director of admissions at Penn's Veterinary School, says, "We seek candidates with a broad range of interests - yet still a deep interest in animals." Increasingly Keiter finds that some female applicants exhibit a lack of interest and experience than males. "For the most part the men are in their early 20s and are coming straight from undergraduate or graduate programs, while many of the women had another career before applying to veterinary school."

This year's class is 72 percent female, compared to 67 percent last year. "Women have been given the wrong information," Keiter says. "They have been told that they can't get a job, or that they can't do the work if they do get in, so they don't even try. An additional problem is the persistent belief of counselors that it is as difficult today to get into veterinary school as it was 10 to 15 years ago, and the lack of communication between veterinary schools and counselors has not helped matters."

Then what makes them apply, finally? "They go into another field - say, finance - but they hear the opportunities for women are opening up, or they can't shake the wish to try veterinary school. They still have a nagging desire to work with animals."

Take Ann MacCormack-Byrd, 28, a first-year student, for instance. A political science major at Smith College, she thought human medicine looked promising. But after working summers in hospitals, she switched to international banking, which also didn't fit.

"I kept trying to figure out why I wasn't happy, why I wasn't doing what I really wanted to do, even though I didn't know what that was," says MacCormack-Byrd. "I kept coming back to medicine, thinking maybe there was another way to put it together. I got a lot of advice about careers. There was a split between the people who supported a change and those who wanted me to change out of what you have done, you should use your first master's and not switch to something entirely different."

Long a pet owner and the neighborhood caretaker for animals, MacCormack-Byrd wanted to test the hypothesis that cats could be her calling. She worked evenings and weekends in an animal hospital. "If I was going to try a second career, I wanted to be sure," she says. Eventually she left banking and spent a year taking additional courses and working at an animal hospital and the Northeast Aquarium in Boston.

The competition for a spot at Penn's Veterinary School is tough, fiercer in some categories that others. Of 350 applicants in 1990, 111, or roughly one out of five, matriculated. At least 62 to 64 members of each class are Pennsylvania residents. Since Commonwealth residents comprise only a fourth of the applicants, their competition is relatively less stringent. Over half of all Pennsylvania applicants are offered admission. As the Pennsylvania number has decreased, the number of those outside the state has increased, and a more diverse class has evolved.

The scope of the competition has changed dramatically since the class that entered in 1960, the earliest year for which records are readily available. On the admissions graph, the line indicating matriculants creeps up from 55 to 160 in 1970 to 110 in 1978, then essentially flatlines. From 1960 through 1966, the line showing applications rises gradually. As the decade ends, the line becomes steep: From an average of 200 to 350 hopefuls, the number shoots up to 850 in 1972 and off-the-chart at 1,250 in '75. Applications plummeted to around 800 by the end of the decade. Matriculants remain essentially constant, at 100.

Mac Keiter attributes the rapid mid-70s rise to the Baby Boom and to the crunch of men applying to veterinary, medical, dental and optometry programs to the Vietnam and the oil embargo. Often, he says, students had to apply several times before getting accepted. Some collecting multiple degrees while waiting for space.

Since 1979 the applicant pool has declined because of a decreasing eligible population and competition from other fields, notably business, law, computer sciences and engineering. "Fewer students are applying now," says Keiter, "but they still tend to have more education than before the boom, and they are more idealistic."

In the Class of 1994, more students (nine) graduated from Cornell University than anywhere else, followed by Pennsylvania State University (eight). There are two from Albright and Ursinus Colleges and 13 each from Albright and Ursinus Colleges and the Universities of Michigan and Pennsylvania. In all, these students represent 75 colleges and universities.

Not surprisingly, biology accounts for half the students' undergraduate majors, and animal science 13 percent. Except for the handful who majored in chemistry and zoology, students were equally likely to have focused on history as animal behavior. "They fact they came from 25 majors. Christine K. Smith, who majored in Russian language and literature, admits there's 'no tie' between Slavic speech and Siberian huskies, but she wouldn't trade her liberal arts background. Figure freshmen have earned graduate degrees: MA's, MS's, PhD's and one MBA. A single factor links veterinary students across the decades. As Smith says, 'I always loved animals - we all did. Veterinary medicine is a good career choice.'"

Keiter adds that modern veterinary medicine is a diversified profession with many options. A graduate can pursue companion animal or food animal medicine, work with aquatic animals, horses, zoo animals, wildlife, laboratory animals or have a career in biomedical research or regulatory medicine.

"And this diversity will make the profession even more attractive to the young people now in high schools and universities. Many of them have a great interest in how we can improve life on the planet, how we can save vanishing species and how we can help people and animals and ensure a better life. Veterinary medicine will play an important part in this and I am optimistic that our application rate will remain steady or even increase, even though the number of high school or university graduates will decrease in the coming years. We will also see a larger number of applicants who want to take up veterinary medicine as a second career, not just women but also men. And as universities in other fields, the profession will become increasingly more attractive to those who have always wanted to work with animals."

Susan Pettoff

Starting Salaries

The School conducted a survey of recent graduates ("V'88, V'89, V'90). Among the questions was one about starting salaries. Here are the figures:

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<thead>
<tr>
<th>Small Animal Practitioners</th>
<th>Equine Practitioners</th>
<th>Food Animal Practitioners</th>
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<tr>
<td>1988 $24,500</td>
<td>$22,000</td>
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<td>1989 $27,000</td>
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<td>1990 $30,000</td>
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The AVMA nationwide average figures for 1990 are:

- Small animal practitioners $37,000
- Equine practitioners $36,000
- Food animal practitioners $27,000

It should be kept in mind that in most practices raises will be granted after six and 12 months of employment. In many cases these raises are substantial.

Student Life

The life of a veterinary student is stressful, new courses every eight weeks, exams, laboratories, city environment, and the hustle of coping with daily life. To ease the burden a bit, a number of people are available to help students cope with the avalanche of forms, to assist in developing a financial aid package strategy and to monitor the debt load and work out a repayment schedule. Loans and scholarships are administered by this office. The School is actively soliciting endowment for scholarship funds, so far 14 dean's scholars are funded for partial tuition.

Communications between students, faculty and administration are important. A faculty student mentor program is in place and the dean has regularly scheduled "drop-in" hours for students. Students learn about these services first during orientation. On the recommendation of the strategic planning committee on student life, orientation this year was changed from a two-day impersonal marathon of lectures on school policies to a small seminar format which allowed the new students to meet faculty, staff and upperclass student on a more informal basis. Alumni too became involved in a three-day effort. And to let the students "meet" the city, sightseeing trips via trolley, subway and bus were arranged.

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**Gastric Dilation Volvulus Syndrome**

Gastric dilation volvulus syndrome, or bloat, is a life-threatening condition which can occur in all breeds of dogs. Dr. David Holt, in his lecture, discussed the disease, its symptoms, and the current treatment regimen.

It is not known why some dogs develop gastric dilation (distension of the stomach), but it is thought that these dogs are greedy eaters who swallow inordinate amounts of air while eating, and that this air remains in the stomach. There may be a genetic predisposition to gastric dilation volvulus. Dr. Gregory Acland here at Penn has been monitoring a colony of Irish setters for eye diseases and has found a greater incidence of GDV in a line descending from one particular female. However, the inheritance pattern indicates that it is not due to one gene, but rather to a number of genes and, perhaps, environmental factors.

In the past it had been thought that great amounts of food, followed by a large water intake, were the cause of dilation of the stomach. Another theory was that exercise after eating a large meal could cause the condition. However, in a study of 600 dogs, divided into groups, with different diets, large and small water intake and exercise after eating, no significant differences in the occurrence of gastric dilation and volvulus in the various groups were found.

Dilation can occur alone or with volvulus. Volvulus can occur without dilation, but it is thought that dilation will only result in volvulus if the stomach is in an abnormal position prior to distention. Breeds affected are often large and deep chested, although a retrospective epidemiological study of hospital cases here at Penn by Dr. Larry Glickman showed that there was not much bias toward the large breeds.

The first symptoms of GDV owners may notice in their dog are anxiety and breathlessness. The animal may be restless, salivating and having a distended abdomen. The animal's condition can deteriorate rapidly as it goes into shock. Dr. Holt explained that poor perfusion is caused by compression of the portal vein and the caval vena cava by the distended stomach. The reduction in blood flow also affects the liver, spleen and kidneys and can cause disseminated intravascular coagulation (DIC), a life-threatening complication. The stomach itself is severely compromised in GDV as its blood flow is decreased up to 80 percent, resulting in death of tissue. In severe cases the stomach can rupture, causing peritonitis.

A dog with gastric dilation needs to be seen by a veterinarian very quickly. Dr. Holt explained that the treatment regimen has changed over the last few years. In the past, animals with GDV were taken straight to surgery for decompression of the stomach and correction of the volvulus. The success rate was about 50 percent.

Now the first step is to prevent or reverse the circulatory collapse by administering fluids intravenously to stabilize the animal. Antibiotics are sometimes given because of the possibility of infection. Radiographs are taken to determine if the stomach has rotated. The stomach is decompressed only after the circulatory system has been stabilized. Decompression is accomplished by passing a tube into the stomach or, if that is not possible, by using a large gauge needle to let the air escape. Throughout these procedures the dog is carefully monitored for vital signs and blood values as well as cardiac arrhythmias.

If volvulus has occurred, surgery is necessary to reposition the stomach. Here the surgeon often finds unpleasant surprises such as dead stomach tissue, necessitating partial removal of the organ. Sometimes splenic vessels are thrombosed and the spleen needs to be removed. To prevent a recurrence of volvulus, the stomach is “peeled” to the abdominal wall. A tube is placed in the stomach, exiting through the abdominal wall. Stitches are placed at the juncture of the tube, stomach and abdominal wall. As the animal heals the stomach wall and the abdominal wall form adhesions, holding the stomach firmly in place. This procedure will not prevent subsequent distention, but it will prevent volvulus. The tube remains in place for ten days and is then removed. The wound heals quickly. If dogs suffer from frequent gastric dilation, such surgery should be considered to prevent volvulus.

**In a dog lying on its back:**

- The picture a normal stomach presents.
- The picture a volvulus presents.

After surgery the patient is moved to the Intensive Care Unit for about two to three days. The first 24 hours can be critical as arrhythmias and DIC may develop. The patient is connected to heart and blood pressure monitors and receives intravenous fluids. Transfusion of blood may also be required. Rehydration and stabilization prior to surgery have reduced the mortality rate to about 15 percent. Some dogs may develop pneumonia as a result of having aspirated stomach fluids. They are treated with antibiotics, nebulization and coupage. These dogs often require a longer stay in ICU. Solid food is gradually reintroduced once the dogs are able to eat on their own. When the patients return home, they receive their regular diet, though frequent small meals are recommended.

Dr. Holt feels that a dog's best chance of surviving gastric dilation volvulus is early recognition of the problem and aggressive use of rehydration prior to surgery.

The presentation focused on the need to feed small portions and that measures are taken to slow down the gulping of food. He advised owners to be alert to the first signs of the disease and to get these animals to the veterinarian quickly because delays in seeking veterinary care mean more severe complications of GDV.

**Control of Genetic Disease in Purebred Dogs: Role of the Canine Genetic Disease Information System**

Dr. Donald F. Patterson, Charlotte Newton Sheppard Professor of Medicine and Chief, Section of Medical Genetics, together with Ms. Patricia Green of his staff, discussed the Canine Genetic Disease Information System (CGDIS), a unique computerized reference program containing comprehensive information on causing genetic diseases. The CGDIS is designed to assist veterinarians and breeders in the quest to accurately diagnose and reduce the incidence of genetic disease in dogs. The project is supported by the American Kennel Club.

Advances in veterinary medicine during the last 30 years have greatly decreased the morbidity and mortality rates in dogs from diseases caused by infectious agents, malnutrition and parasites. There is now an increased awareness of disorders caused by congenital malformations, growth related deformities, metabolic defects, disorders of the immune system and cancer, all of which have important genetic components. While there presently is no cure for most genetic disease, most can be prevented, or at least reduced in incidence, through selective breeding practices. It is for the recognition of inherited diseases and the development of such breeding strategies that the CGDIS is important.

Dr. Patterson explained that mammalian species have about 50,000 genes and the function of most genes is the production of a specific protein. If a disruption in the gene occurs, disease may result. In many diseases environmental factors play an important role in the severity of the disease. At one end of the scale are diseases that cause mortality mainly due to defective genes while at the other end are diseases caused mainly by environmental factors such as viruses. However, even here genes enter the picture as some animals, due to their genetic makeup, are more resistant to viral infections than others. For example, it has been shown that Doberman pinchers and Rottweilers are more severely affected by parvovirus infections than other breeds; this susceptibility has a genetic basis.

By 1988 researchers had recognized 281 genetic diseases in the dog, since then ten to 12 new canine genetic diseases are described annually. The number now stands at over 300. This does not mean that new genetic diseases are constantly developing. Rather, discovery of additional genetic diseases is due to increased sophistication of veterinary medicine and improved diagnostic tests.

Genetic diseases may involve any of the body...
Common Eye Problems Important to Dog Owners and Breeders

Dr. Stephen Gross, a board certified ophthalmologist, began his presentation by stressing the importance of the Canine Eye Registry Foundation (CERF) which oversees the canine eye certification program. Dogs should be examined for eye defects at age 1 1/2 years and then annually thereafter. The eye exam is performed by a board certified ophthalmologist, usually during eye clinics sponsored by dog clubs. Unfortunately many of the inherited eye diseases in dogs are apparent at different ages, some as early as two months, making it evident very early while others cannot be detected until the animal is four or five years old. The same is true for progressive retinal atrophy, thus, Dr. Gross stressed, conscientious breeders have these exams perching together the age of eight to ten years, depending on the breed.

Dr. Gross explained that the anatomy of the dog's eye is similar to that of the human eye, though there are some obvious differences. In dogs, the fluid-filled anterior chamber, cornea, third eyelid, the retina, and the optic nerve transmit the image from the retina to the brain. Dogs, unlike people, can pull back the eye if it is painful, the third eyelid then slides into place, protecting it.

The parts of the eye are delicate and surgery is performed with special instruments and a biomicroscope. Stitches are numerous and tiny. Dr. Gross stressed the importance of seeking an experienced specialist for any kind of canine eye surgery.

The first eye problem discussed was the dermoid, a developmental defect. A tiny piece of skin grows on the cornea. Although it does not impair vision, it often causes irritation because it contains hair follicles. It is easily repaired by surgery. Dr. Gross feels that dogs which have dermoids should not be bred.

Faulty eyelids can cause quite a few problems on each individual dog. Dr. Patterson commented that this is quite common in wolves that are being bred. Dr. Gross added that ophthalmologists have begun to study the problem, and that it is up to the owner's ethics whether or not to breed a dog with this defect.

A naural eyelids can cause quite a few problems. Quite a number of breeds, particularly Brachycephalic ones, have rather large, protruding eyes, making the organ prone to injury. In extreme cases, the eye grows out of the eyelid socket where the upper eyelid slides behind the eye. This injury can be surgically repaired, although vision is often lost in the eye because the optical nerve has been damaged. Surgery to correct too large an eye opening involves stitching together the eyelids at the corners of the eye.

Eyes lashes usually grow on the skin side of the eyelid. But they can grow right at the edge, rubbing against the eye and causing irritation. They can also grow on the inside of the eyelid, causing constant discomfort. In severe cases, the eyelashes can be removed surgically, though this may not completely eliminate the problem.

Entropion is another disorder where hair causes discomfort. This can occur around the tear duct which irritates. The eyelids roll in and the fur rubs against the eye. This is quite common in breeds that are heavily wrinkled, particularly on the forehead. In extreme cases, the disorder is evident as early as 12 to 14 days of age. In young pups the eyelids can be tacked up to give the dog time to grow. Dr. Gross explained that the corrective microsurgery, involving a complete restructuring of the eyelids, is normally done at four to six months of age, but in extreme cases it can be performed earlier. If not treated, the constant irritation causes ulceration of the cornea and great discomfort.

Corneal ulcer

Cataracts are not painful, but they cause impairment or loss of vision. A cataract is defined as any opacity on the lens. They are common in many breeds and are mostly inherited, though the mode of inheritance is not clearly understood in many breeds. Cataracts also can be caused by trauma, and, in young puppies, by milk replacer. Dr. Gross explained that the lens develops in layers as the animal grows, thus the location of a cataract provides important clues to its nature. Cataracts which develop in the fetus have a different location than those developing at a later age. Cataracts range in size, density and rate of growth and must be observed over a period of months. Cataracts can be surgically removed, though this depends on the patient. If the animal is old and not very active, it is often best to not perform surgery, particularly if the cataracts had a gradual onset and the animal has adjusted to its limited vision. The pupil can be dilated with medication to enlarge the dog's limited vision. Dr. Gross stressed that dogs can get along well with seeing just from one eye or with limited vision. Usually cataract surgery is performed once the second eye becomes affected.

Cataract surgery in the dog is more complicated than in humans because of the larger size of the lens and the full anesthetia required. Also, dogs' eyes react to surgery with greater scarring than human eyes. There are different techniques employed by the surgeon. The entire lens can be removed or a technique called phacoemulsification can be used. A tiny incision is made through the cornea and an ultrasound probe is inserted and used to shatter the cataract. The pieces are removed and the incision is closed. However, this technique does not work for all types of cataracts.

Dr. Gross explained that a dog can see without a lens, though it is not able to see small things, but it can observe a room and large objects. He also mentioned that ophthalmologists have begun to implant lenses, but this treatment is quite costly. A soft contact lens is used in the treatment of recurrent corneal abrasions, a condition in older dogs where spontaneous abrasions of the cornea develop. These are very slow to heal and quite painful. The contact lens facilitates healing and makes the eye more comfortable.

Corneal abrasions can also be caused by lack of tears. This is often manifested by an eye with a red film and copious amounts of mucus. It is thought that the lack of tears is due to an inappropriate immune attack on the tear glands. Each eye has two such glands, one is quite familiar to dog owners as it can pop up from its place behind the third eyelid giving the appearance of "cherry eye." In the past, surgeons removed the gland, but now it is stitched back into place to preserve the tear gland. Lack of tears is treated with a specially formulated ointment and drops.

During the question and answer period Dr. Gross explained that cholesterol or lipid deposits in the eye are not cataracts and that they are due to past injury, dryness or scarring. He said that they do not severely impair vision. He mentioned that one should check the eyes of a dog that is scratching or squinting or discharging tears, a veterinarian should be consulted. The statement that any surgical repair would render a dog ineligible for AKC shows was also addressed. Dr. Gross stressed that these repairs are necessary for the comfort and health of the animal and that it is up to the owner's ethics whether or not the dog will be shown.

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Transfusion Medicine and the Blood Bank at VHUP

Transfusion medicine is a relatively new field in veterinary medicine and blood transfusions are becoming an increasingly important treatment modality. They are the number one tissue transplant procedure in humans and animals. Donna Oakley, VHUP head nurse and blood bank coordinator, provided an overview of transfusion medicine and the canine blood donor program at the Veterinary Hospital of the University of Pennsylvania.

She mentioned that the first reported canine blood transfusion was performed in the late 1800s by surgically attaching the artery of one dog to the vein of another. Today blood is transfused through IV catheters and, in most cases, whole blood is not administered, just the required specific components of blood.

Blood is composed of a liquid portion, the plasma, and a cellular portion consisting of different cell types: red blood cells carrying oxygen; white cells serving as a defense mechanism producing antibodies and locating, engulfing, and destroying foreign material; platelets with strong adhesive properties facilitating clotting. Plasma consists of water, salt and proteins (albumin, clotting factors, etc.). A unit of blood can be separated into its different components, allowing treatment of specific diseases with specific blood products.

For example, a red cell transfusion may be needed if an animal has become anemic due to Babesia canis (a protozoan) infection or from heavy flea infestation. Red cells are also needed for the crisis management of hemolytic anemia before the dog can receive drugs to correct its over-reactive immune system. Clotting factors are administered if an animal has a bleeding episode due to Willebrand's disease. By using these specific components, exposure to volume overload and the incidence of transfusion reactions can be greatly reduced.

Blood for any transfusion is crossmatched to determine whether donor and recipient are compatible. It is thought that dogs have as many as 13 different blood groups, however, as Ms. Oakley pointed out, it is possible that many more groups will be discovered as the study of canine blood continues.

Three groups cause the most severe reactions due to incompatibility. Two types of transfusion reactions can occur: immune mediated reaction where the body destroys red cells because of antibodies present in the recipient; and non-immune mediated reaction which occurs when the blood products being transfused are defective, due to an improperly collected, stored or administered product. Both reactions are severe and can occur for up to three weeks after the transfusion, requiring close monitoring of transfusion patients. At VHUP all blood and blood products are stored in state-of-the-art refrigerators and freezers designed to keep the required temperatures at all times. All blood transfused here is passed through special filters to remove clots or other debris.

Ms. Oakley briefly mentioned some blood transfusion alternatives reducing adverse transfusion reactions: concentrated hemoglobin transfusion or a hormone treatment that stimulates production of red blood cells; preoperative autologous donation where, prior to elective surgery, the animal donates its own blood which is available later if needed; acute normovolemic hemodilution for long procedures where blood loss is anticipated. This last alternative involves removing multiple units of blood which are replaced by intravenous fluids to dilute the blood prior to surgery. Post-operatively, the patient is transfused with its own blood, eliminating the chance of transfusion reaction to a foreign donor.

VHUP performs between three and six transfusions daily. Blood is always needed and three years ago a program was initiated where students, faculty and staff brought in their dogs to donate blood. Soon it was realized that these animals could not meet the demand, and Donna Oakley reached out to dog clubs and breeders in the tri-state area. Today almost 500 dogs are enrolled in VHUP's canine blood donor program. These animals are brought to VHUP regularly to give blood to help sick patients. Canine donors must be at least one year of age and should not be older than 10 years. They must weigh at least 30 pounds and cannot be on medication other than heartworm preventive. When they come to VHUP, a complete blood count and heartworm test are performed to ensure adequate health status. The collection process takes about five minutes. The animal is placed on its side on a table. The owner is usually present, helping to keep the dog in position. Blood is collected from the jugular vein and weighed to speed up the process. According to Ms. Oakley, dogs don't mind the collection process, though some get a bit impatient for having to remain still for the five minutes.

After the pint has been collected, the dog is taken from the table, offered a light meal and water. It also receives a blood donor ID card and the owner is instructed to limit exercise for 24 hours. Six weeks later the dog can again donate blood.

The program at Penn's Veterinary School is the largest in the country. Ms. Oakley hopes that soon owners and their dogs will not need to travel to VHUP as the School will be obtaining a mobile unit the animal can ride in. Blood will be collected and transported back to the School where it will be equipped with an exam table, cooling unit, microhaematocrit centrifuge, hemoglobimeter, gram scale, and other blood collecting and processing equipment.

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Roger Caras Honored

The Maryland Veterinary Medical Society held a "roast" for Dr. Roger A. Caras in Baltimore in October. At the end of the evening Dr. Caras was lauded for his many contributions to wildlife, animal welfare, and the veterinary profession at large. Dean Andrews presented the School's Centennial Medal to Dr. Caras. Following is the laudation, composed by Dr. Donald A. Abt, that was read during the presentation:

"Distinguished spokesman for and champion of all animal life, large and small, domestic or wild, traveling the world over to share your love and devotion for animals with your fellow human beings through authorship of highly respected and widely read books and magazine articles, notable radio and television presenter; tireless personal contributor of talent, time and energy to a legion of worthy organizations dedicated to the well being of animals; and wise counselor to those in need. World traveler from the plains of Africa to the islands of Greece, to the Far East, to Prince William Sound and even to the South Pole, to identify but a few of the sites where your concern for animals and society has drawn you.

From each location, you brought back a new and vital appreciation for and understanding of the fragile balance within which our non-human neighbors live. Your eloquent voice then focused our attention, with clarity and respect, on the needs and plights of those deserving our concern. You have brought constructive awareness of our responsibilities to all segments of our society.

In particular, you have served the School of Veterinary Medicine at the University of Pennsylvania with great distinction both as a member of its Board of Overseers and as a deeply involved participatory member if the advisory faculty. As an Overseer, you have provided your fellow Board members with the interactions of animals and mankind thereby facilitating enlightened decisions crucial to the advancement of the School. As a teacher, you have paved the way for essential broadening of our students' horizons. Your course dealing with the diverse interactions of veterinary medicine and society became a benchmark to which others aspired as it led our students into uncharted waters. The ever-increasing requests for enrollment were a testament to the value of your contribution and signified the forethought you exhibited by seeking the opportunity to present such a course. What was once unorthodox has now become commonplace through your concerns and gift of sharing. To share oneself through the education of our youth is truly a noble gift.

In recognition of your extensive contributions to our School and the veterinary profession at large, we are honored to present you this, the Centennial Medal of the School of Veterinary Medicine."
Laboratory Animal Medicine Residency Program

In June of 1990 three veterinarians graduated from Penn after completing a postdoctoral training residency in laboratory animal medicine. They were the first to complete Penn's Laboratory Animal Medicine residency program, established in 1987 at Penn's School of Veterinary Medicine. It is the only such program academically based in a veterinary school, and offers postgraduate laboratory animal medicine training through the Veterinary School and the Office of University Laboratory Animal Resources. The program is under the direction of Dr. Harry Rozmiarek, professor of laboratory animal medicine and Director, Office of University Laboratory Animal Resources. "We offer a three-year residency in laboratory animal medicine," said Dr. Rozmiarek. "We want to graduate competent laboratory animal veterinarians and research scientists. Their academic home is the veterinary school and the three other Schools on campus that house animals. The residents gain additional clinical experience by seeing cases at the Philadelphia Zoo, other research institutions in Philadelphia, and at private industry animal laboratories. They work with a wide variety of species, ranging from insects and fish to large mammals."

It is estimated that more than 20 million animals are housed in research laboratories in the USA. By far the most are rodents. However, laboratory animals include a multitude of species, ranging from invertebrates to primates, each requiring specific care to remain healthy and content. While animals have been an important part of medical research for centuries, regulations covering their care were not enacted in this country until 1966. Specialized laboratory animal medicine training for veterinarians became formalized nine years earlier, in 1957, with the establishment of the American College of Laboratory Animal Medicine. Prior to the specialized veterinary medical courses, the topic of laboratory animals was covered in veterinary science, not necessarily taught by veterinarians.

Dr. Rozmiarek explained that a laboratory animal medicine veterinarian deals not only with individuals but with populations of colonies. "Our practice is a preventive one, we try to keep disease out of the colonies. For example, we are trying to eliminate all rodent viruses from campus." The residents and laboratory animal medicine veterinarians see their patients in the colonies, very much like clinicians. "There are diseases that are of unique concern in laboratory animals, such as rodent viruses. And because many animals are kept together in one area, the transmission of disease within a colony is always of foremost concern." The animal facilities include isolation wards to prevent spread of infectious diseases. At hand are also diagnostic facilities, such as laboratories for tests as well as radiation biophysics, and research methods. In addition, they attend weekly seminars on laboratory animal pathology, biology and diseases, uses of laboratory animals, and laboratory animal medicine. Clinical duties, a resident must hold a medical degree. A resident may specialize in any aspect of laboratory animal medicine; nutrition is an example, it is offered here at Penn. Each resident must be the primary investigator for an independent research project including data collection, analysis, and presentation. A project must be prepared and accepted for publication by a refereed journal.

Besides all aspects of medical care for laboratory animals, the residents' training covers proper socialization of these animals, enrichment of their environment through lighting, play equipment, and interaction with humans. These are especially important to keep cats, dogs, and primates content and occupied.

The administrative aspects of the specialty are also covered. Residents are familiarized with institutional, state, and federal regulations governing laboratory animals. They learn to design a research project from the initial proposal to the grant application process to shepherding it through the University regulations to carrying out and monitoring the work in, short, they are exposed to all aspects of laboratory animal medicine, be they medical or administrative. Once the residency is completed, a board exam can be taken to become board certified in laboratory animal medicine.

In addition to a core course in laboratory animal medicine taken by all veterinary students, laboratory animal medicine courses are also offered as an elective to junior and senior veterinary students. "Last year we had 35 students taking the course," said Dr. Rozmiarek. "There is a great deal of interest in the subject and a great need for qualified people."

While the subject of animal use in research is a controversial one, the postgraduate training in the specialty, and the courses offered to veterinary students, ensure that specially trained veterinarians take an active role in the care of these animals. As the graduates of the residency program are familiar with the medical requirements and regulatory and administrative concerns, animal research projects can be better designed and monitored, keeping the wellbeing and comfort of the animals foremost.

The postdoctoral residency in laboratory animal medicine is open to applicants holding a VMD/DVM degree or equivalent. For further information about the program, please contact:

Dr. Harry Rozmiarek
Professor of Laboratory Animal Medicine
Director, Office of University Laboratory Animal Resources
University of Pennsylvania
100 Blockley Hall
Philadelphia, PA 19104-6021

Dr. Stubbs dies

Dr. Evan Lee Stubbs, a pioneer researcher in avian pathology, died Jan. 3, 1991 after celebrating his 100th birthday with a reception in Kennetts Square, PA. Dr. Stubbs graduated from the University of Pennsylvania School of Veterinary Medicine in 1911 when veterinary medicine in the United States was still an emerging profession; the primary patients were horses, cows, and other livestock, and veterinary researchers were scarce.

Dr. Stubbs opened a country practice at his father's farm near Oxford, PA and made farm calls for more than two years by horse and carriage. In 1913 he accepted a position as assistant veterinarian at the State Farm, located in Marple Township, PA. This farm, operated by the Pennsylvania Bureau of Animal Industry, produced anti-hog cholera serum which was supplied free of charge to veterinarians. Dr. Stubbs was also on call to visit sites of hog-cholera outbreaks and was available for other diagnostic assistance.

The State Farm was closed in 1919 and Dr. Stubbs was transferred to the State Laboratory, located at Penn's Veterinary School in Philadelphia. Here he was responsible for conducting a variety of diagnostic tests, primarily for diseases in livestock. At about this time, Dr. Stubbs became interested in poultry diseases, a field then neglected by the veterinary profession. He was one of the first researchers in the United States to study avian diseases. He identified the first case of fowl plague in the United States and conducted research on avian influenza. Dr. Stubbs also studied avian leukosis and strain 13 sarcoma virus experimentally. By 1927 he had published 13 scientific papers on poultry diseases and had initiated a special post graduate course on poultry diseases for veterinarians.

In 1927 the State Laboratory was moved to

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Donna Oakley, VHUP head nurse/wards and blood bank coordinator, received the 1990 Annual Humanitarian Award from the Pennsylvania Federation of Dog Clubs for her work with the out-patient VHUP Blood Donor Program.

Sally Powell, supervisor of nursing in VHUP emergency service, and Nancy Shaffran, head nurse VHUP ICU, have been invited to represent Penn's Veterinary School at the 1992 International Veterinary Emergency and Critical Care Society meeting. Chosen as "super techs," they will be among only eight people in the nation invited to participate.

Dr. Eric Talleners, assistant professor of surgery, received a grant from the Grayson-Jockey Club Foundation to study idiopathic laryngeal hemiplegia (roaring). Dr. Talleners hopes to develop a non-invasive surgical technique to treat the problem.

Dr. Jeffrey A. Wortman, V'69, associate professor of radiology, was elected president of the American College of Veterinary Radiology.

Dr. Richard Squires, lecturer in medicine, successfully defended his Ph.D. thesis, entitled "Characterization of endogenous retroviral elements in canine DNA."

Dr. Charles D. Newton, professor of orthopedic surgery, has been elected to the governing board of the University's Lindback Society.

The Pennsylvania Veterinary Medical Association awarded Dr. Ernest J. Witte, V'42, the Distinguished Veterinary Public Service Award for his service as chief, Veterinary Public Health Section and director, Division of Acute Infectious Diseases, Pennsylvania Department of Health from 1952 to 1988.

Dr. Mary Dellafera, V'79, has been appointed research assistant professor in laboratory animal medicine. Dr. H. Mark Saunders, V'81, has been appointed assistant professor or radiology. Dr. Joy Weinstein, V'83, has been appointed assistant professor of orthopedic surgery.

Dr. Nishi Dhupa, resident in emergency medicine and critical care, received the certificate in small animal cardiology (RCVS).

Dr. David Diefenderfer, V'81, lecturer in orthopedic surgery, received the "Warm Fuzzy Award," presented annually by the Philadelphia area veterinary associations for excellent service to referring veterinarians and their clients.

Dr. Corinna R. Swenson, assistant professor of medicine, and Dr. Joan C. Hendricks, V'79, assistant professor of medicine, were elected to the board of the Comparative Respiratory Society.

Dr. Stephen J. Peoples, V'84, has been appointed assistant professor of anatomy at the School of Veterinary Medicine, Purdue University and has been recently promoted to director of Clinical and Scientific Affairs at DePuy Orthopedics, a division of Boehringer Mannheim Corporation. Dr. Peoples is collaborating with Dr. David Van Sickle, chairman, Department of Anatomy at the Purdue School of Veterinary Medicine, on various research projects evaluating the biocompatibility and tissue response of biomaterials for use in orthopedic implants.

Dr. David T. Galligan, V'81, assistant professor of animal health economics, won the 1990 LOTUS award as one of the five best user written applications of spreadsheet technology in the United States for his 1-2-3, Dairy Production Medicine Software - Nutrition Module. More than 500 companies, industry analysts, consultants, and other experts were polled for their nominations of the most sophisticated and important applications of 1-2-3, and Dr. Galligan's application was voted by the editors of LOTUS as one of the winners.

Dr. William A. Moyer, professor of sports medicine, and Rob Sigafoos, farrier at New Bolton Center, made presentations at the Fifth Annual Bluegrass Laminitis Symposium, held in Louisville, KY, in January. Rob Sigafoos delivered the fifth annual Charles Hemphues Memorial Lecture at the University of California at Davis in January.

Dean Edwin J. Andrews, V'67, was a panel member of the Panel of Deans at the 56th Annual Conference of the New England Veterinary Medical Association. The panel discussion topic was "Past, Present and Future of Veterinary Medicine: New Directions for the Profession."

Dr. Gerhard Schad, professor of parasitology, is co-editor with K.S. Warren, Rockefeller Foundation, of Hookworm Disease: Current Status and New Directions. Dr. Schad has been invited to serve on the U.S. Advisory Committee to the Kapnek-Simon Mazorodze Institute for Biomedical Education and Research in Zimbabwe. A NATO grant for "Cloning genes for functional antigens of hookworm Ancylus lumbricoides" was renewed; the project is a collaborative one by Dr. Schad and Dr. David Pritchard, University of Nottingham, England.

John Hawdon, a graduate student in parasitology, won first prize in the Student Research Competition sponsored by the Helminthological Society of Washington. Robert Maze, also a graduate student in parasitology, won first prize in the competition sponsored by the New Jersey Society for Parasitology.

Dr. David Nunemaker, V'68, Jacques Jenny Professor of Orthopedic Surgery, presented a paper, co-authored by Dr. Dean W. Richardson, assistant professor of surgery, and Dr. Simon Turner, Colorado State University on "Plate Luting: A Technique that Improves the Fatigue Life of Compression Plate Fixation." This presentation was made at the Second Conference of the International Society for Fracture Repair and was held at the Mayo Clinic in Rochester, MN, and at Hennepin Medical Center, Minneapolis, MN during his annual summer dig for dinosaurs.
New Bolton Center Day at the Races

Dr. Allen Weintraub, whip - despite the weather guests enjoyed a champagne carriage drive to New Bolton Center Day at the Races at Saratoga. The Veterinary School is fortunate to have the generous support of many friends who made possible the 1990 New Bolton Center Day at the Races. For this special occasion, all the August 10th races at the Saratoga Racecourse except the feature were named to honor outstanding horses including BANKER'S LADY, HEIGHT OF FASHION, HOIST THE FLAG, MISS HUNTINGTON, ROCKEM BACK, SMART ANGLE, WEEKEND SURPRISE and ZACCIO.

One of the guests of honor at the event was the artist, Mr. Peter Williams, who had kindly donated a painting for use on the invitation. Though rain fell on the 10th, it didn't seem to dampen interest in this lovely oil painting which also was auctioned during the luncheon to benefit the Center.

Mrs. J. Maxwell Moran chaired the Advisory Committee which successfully raised more than $84,000 to support laser surgery research on respiratory problems and to equip the new treadmill area in the sports medicine facility at New Bolton.

NIH Grants

The National Institutes of Health have awarded Dr. David M. Nunemaker, V'68, Jacques Jenny Professor of Orthopedic Surgery, a three-year research grant to study “Fatigue of Bone: Relationships of Exercise.” This grant for approximately $777,434 will be undertaken over a three-year time with Dr. Nunemaker as the principal investigator and Dr. Michael Provost, V'88, as a co-investigator in the project. The project is directed at a more complete understanding of fatigue failure as it occurs in bone and at the relationships that different exercise regimes have on the mechanical and geometric parameters of bone and the biological reaction of bone to those exercise programs. The researchers propose to use the horse as a spontaneous model of fatigue failure (bucked shins) to test the hypothesis that high strain exercise causes decreased stiffness of bone. This study will also reconstruct fracture injury in bone using image analysis techniques to allow for three-dimensional reconstruction on two-dimensional histologic sections.

Dr. Sue M. McDonnell, Director of the Reproductive Behavior Program, has received a five-year “Research Career Development Award,” from the National Institute of Neurologic Disorders and Stroke, Division of Fundamental Neurosciences. The project is entitled “Pharmacological Manipulation of Erection and Ejaculation.” Mechanisms of mammalian erection and ejaculation will be studied principally in the stallion, but also in bulls and boars.

The National Institute of Allergy and Infectious Disease has awarded a five-year grant to Dr. Jay P. Farrell, professor of parasitology and Head, laboratory of parasitology, to study the activation and regulation of T-helper subsets during immune response to cutaneous leishmaniasis. This form of leishmaniasis is caused by a protozoa parasite, Leishmania major. The disease is prevalent in the Middle East, Central and South America, and Asia. Affected people suffer open cutaneous ulcerating lesions, which may take many months, or even years, to resolve.

Honors for Dr. Adrian Morrison

The American Association for the Advancement of Science presented the Scientific Freedom and Responsibility Award to Dr. Adrian Morrison, professor of anatomy and Head, laboratories of anatomy. The tribute cites Dr. Morrison for his dedicated promotion of the responsible use of animals in research and his courageous stand in the face of great personal risk against attempts to curtail animal research essential to public health.”

In November 1990 Dr. Morrison received the Distinguished Service Award of the Society for Neurosciences and the Rick Simpson Award, given in memory of the founder of the Incurably Ill for Animal Research. Dr. Morrison is the first recipient of the Mahoney Institute's newly created Director's Award, given in recognition of his dedication to neuroscience and his courageous support of the humane and ethical use of animals in biomedical research.
Deafness in Dogs

In puppies, the ear canals are sealed until 12 to 14 days of age, so all new-borns are deaf. After two weeks of age, deaf animals usually are difficult to arouse from sleep. The animal may be over a year before the owner recognizes the problem. Care of deaf pets requires a highly dedicated owner and special training methods. A deaf animal may reflexly bite when startled and may have other behavior problems, but many deaf animals grow normally.

Inherited deafness often is associated with white color (piebald gene) and with the merle gene. It is generally uncommon in the canine population. In the United States, special referral centers should be used for breeding. Affected animals should not be used for breeding.

Veterinary Education

In 1807, Dr. Benjamin Rush proposed veterinary education in a lecture at the Medical School of the University of Pennsylvania. The title was "On the Duty and Advantages of Studying the Diseases of Domestic Animals, and the Remedies Proper to Remove them."

The reasons given were: (1) the "absurd, painful and destructive" treatment to which they were subjected when diseased, by uninformed or misinformed well-meaning individuals; (2) the gratitude we owe them for the services and materials they furnish; (3) to guard against the spread of disease from them to man through the food products and other materials they supply; (4) to prevent the extensive losses of animals and their products by "epidemics of destructive diseases"; (5) to "add greatly to the certainty and usefulness of the profession of medicine as far as it relates to the human species ... the matter in which the remote and proximate causes of disease produce their morbid effects" being "the same, as in the human body, and most of the medicine" producing "in them and in us nearly a similar operation"; and finally, (6) "the precepts in the Old and New Testaments, which recommend kindness to them and protection from outrage and oppression."

The first class entered the University of Pennsylvania's School of Veterinary Medicine in October 1884. There were 12 faculty members and 29 students, ten of whom graduated in 1887.

The 105th class graduated in 1990. The total number of graduates is 4,599, of whom 942 are women. At the present time, there are 100 standing faculty members.

"One Medicine" is often used in describing courses taught. There is great similarity between veterinary and human medicine. Each contributes to the other. A vast amount of knowledge that has been developed has resulted in specialization and fewer general practitioners. We have improved treatments and methods, but a look back into veterinary history shows that the reasons for studying veterinary medicine remain the same now as over a hundred years ago.

"Mad-Cow Disease"

Bovine spongiform encephalopathy (BSE) is a fatal degenerative disease affecting the central nervous system of cattle. It was first diagnosed in Great Britain in 1986 and is not known to exist in the United States. There has been no scientific evidence to date that indicates BSE is a human health hazard.

Cattle with the disease may appear quite normal for years. Then affected animals show changes in temperament such as nervousness and aggression, incoordination, decreased milk production and, eventually, death. The cause is not known and there is no test to detect the disease in a live animal. The diagnosis is confirmed post-mortem by microscopic examination of brain tissue; there is no test to detect the disease in a live animal.

BSE belongs to a group of brain disorders which include scrapie, a disease of sheep in which affected animals tend to scrape themselves against fences, rocks and walls. There have been prohibitions against sheep and goat importation from Great Britain to the United States for many years. In this country, research continues on scrapie and there is increased surveillance to detect BSE should it be introduced.

There has been a great deal of publicity in the lay press, because this is something new. There is much speculation, particularly since the cause is as yet unknown. The risk of transmission to humans is remote.

Canine Good Citizens

The pet overpopulation problem is leading to greater anti-dog sentiment. In San Mateo County, CA, legislation is proposed to ban the dog and cat nervous system of cattle. It was first diagnosed in Great Britain in 1986 and is not known to exist in the United States. There has been no scientific evidence to date that indicates BSE is a human health hazard.

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American Kennel Club shows and classes offered are described. There is advice on selecting the right breed, including observing at dog shows, and where to purchase a show dog. "Beware of the breeder who guarantees that the puppy will finish its championship. The most that can be guaranteed is that the puppy is healthy, appears to be mentally sound, and for its age, is structurally correct." There are chapters on health and maintenance of a show dog, grooming and training. "Grooming is a lifelong process, whether or not you intend to ever show your dog."

Preparing for the show ring may start with attending handling classes. Then match shows provide an opportunity to practice. Everything you need to know about pointers is covered - how to enter, what to take, what to wear, ring procedure and how judging progresses. Junior Showmanship is discussed as well as Professional Handlability.

The appendix gives sample contracts and sample entry forms as well as a glossary defining commonly used terms and diseases. A "Special" is a term used to describe a dog or a bitch which has completed its championship and is in competition for Best of Breed.

The book covers conformation judging only. It does not include Obedience. It is an excellent guide for those interested in breed competition.
First Hill's Pet Products Dean's Scholar Named

Robin Pullen, a senior student, was named the first Hill's Pet Products Dean's Scholar at the University of Pennsylvania School of Veterinary Medicine.

The scholarship is funded by a $50,000 endowment generated through the Hill's Pet Products College Feeding Program initiated in 1988. Since its inception, this program has raised more than $75,000 from the proceeds of the sale of Hill's Pet Products to students, faculty and staff at Penn's veterinary school. It is expected that funds will be in hand soon for a second Hill's Pet Products Dean's Scholar.

The Dean's Scholar program at the Veterinary School was initiated in 1989 with the goal of establishing a minimum of 100 Dean's Scholars currently there are 18 such scholars.

Penn's Hill's Pet Products, in addition to enabling Penn to endow a Dean's Scholar, supports a resident in nutrition, funds veterinary dental research, and provides part-time funding for a resident in veterinary dentistry. The company also awarded four annual scholarships to students, and it is a sponsor of the Penn Annual Conference.

Scholarships

A number of students were named Dean's Scholars: Michael P. Penserstadler, V'94, and Elisa M. Braunstein, V'93, are Dr. M. Josephine Deubter Dean's Scholars; Samuel B. Guss Memorial Scholar, V'94, is the Anne Linn White Dean's Scholar; Jean M. Betkowski, V'91, is The Mrs. Jack Billhardt Dean's Scholar; Lance H. Bassage, V'93, is The Ethel H. Mitchell Dean's Scholar; Kirk Smith, V'91, is The Bruce J. Helm Dean's Scholar.

The Pennsylvania Veterinary Foundation awarded the Dr. Palace H. Seitz Memorial Scholarship to John J. McCauley, V'92. The Dr. Samuel B. Guss Memorial Scholarship was awarded to Jennifer A. Andres, V'91. The foundation awarded the Dr. Samuel F. Scheidy Memorial Scholarships to Mary M. Bowser, V'91, and Kirk T. Smith, V'91. The FVMA Auxiliary Scholarship was awarded to Lori Lynn Ludwig, V'92.

Mary M. Bowser received the Westminster Kennel Foundation Scholarship. Ms. Bowser and the other three recipients of the scholarships were presented with certificates during the evening judging of the Westminster Kennel Club dog show at Madison Square Garden, New York. The Berks County Kennel Club awarded two scholarships, the recipients are Kimberly Ann Werner, V'91, and John Melniczek, V'92. Gregg Campbell, V'91, received a scholarship from The Lloyd's Underwriters, Lloyd's Brokers and Kentucky Agents Joint Equine Research and Education Committee. Lisa Macom, V'91, received the Janie F. Cotter Scholarship from the Princeton Small Animal Rescue League. Tiffany Bogart, V'92, is the recipient of a scholarship from the Burlington County K.C. The Missplion K.C. awarded the William E. Spence D.V.M. Scholarship to Corinne A. Dunagan, V'92.

The Plainfield K.C. provided scholarships for Camille DeClementi, V'94, and Joyce Koch, V'91. Four senior students, Jennifer Andres, James Holt, Debra Lane, and William Rives, are the recipients of a Dr. J. E. Salsbury Scholarship. Herbert Burns, V'92, received a Harness Tracks of America-Harry M. Stevens-Peter Haughton Scholarship.

Donna Vitorelli, V'91, was awarded a scholarship by the Eastern Surfing Association's Marsh Scholarship Fund. She also received a scholarship from the National Scholastic Surfing Association. Mark Boccella, V'91, was awarded the New York Farmers, Inc. Scholarship. Janet G. Jones, V'91, and Joyce R. Koch, V'91, were the recipients of the Dorr Scholarships.

Scott D. Johnson, V'91, received a scholarship from the Town of Thomaston Dietz Scholarship Fund. The W. H. Green Memorial Scholarship, V'91, is The William Goldman Foundation awarded five scholarships here at the School. These recipients are: Gregory E. Erdman, V'91, Lori J. Ludvig, V'92, John J. McCauley, V'92, Holly B. Meheu, V'93, and Christine M. Ratti, V'93. Pamela Lynn Bendoek, V'92, received a scholarship from the Union County K.C. Four Greenberg Memorial Scholarships were awarded to seniors, Mary M. Bowser, Dana C. Lebo, Robert J. Lewis, Jr., and Michael L. Mihlfried. Leslie Ziemer, V'91, received a scholarship from the Gundaker Foundation.

Penn Annual Conference

Many thanks to our 750 veterinary practitioners, 127 veterinary technicians and 80 exhibitors for their enthusiastic support of the 1991 Penn Annual Conference. The Dean's Reception was attended by 1,100 of our alumni, friends and patrons.

We look forward to seeing you on Wednesday, January 22 and Thursday, January 23, 1992 at the Adam's Mark Hotel.

We acknowledge the support of the following exhibitors who helped subsidize the Conference costs. They are shown here accepting a certificate presented by Dr. Charles Newton.

Academic Cooperation between School and Japanese Vet School

On the occasion of the centennial celebration of Azabu University in Japan the University of Pennsylvania School of Veterinary Medicine and the School of Veterinary Medicine of Azabu University signed a Memorandum on Academic Cooperation between the two institutions.

Both schools agreed to promote cooperation in the area of research and education and to exchange academic materials, publications and other information. Both schools will promote exchanges between the two faculties and encourage exchanges between students once a year during summer vacation.

A number of Penn's veterinary faculty have traveled to Azabu University to lecture at the veterinary school. Two groups of students from the Japanese School have spent a week each at VHUP to observe the clinics. A third group's visit is planned this summer.

Dr. Darryl Biery and Dr. Charles Newton traveled to Japan to attend the centennial celebrations and to participate in the signing ceremony.

Hip Dysplasia Diagnostic Clinic

The Veterinary Hospital of the University of Pennsylvania offers special appointments Wednesday evenings for radiographic screening of dogs for hip dysplasia. Dogs will be radiographed employing the new diagnostic technique developed by Dr. Gail Smith. This technique measures the laxity of the hip joint and permits the diagnosis of hip dysplasia in dogs as young as four months. An OFA view will also be taken. Litters of puppies should be between the ages of 16 to 20 weeks.

The cost is $150 for an adult dog, $125 for the first puppy of a litter and $65 for each additional puppy in the litter. An appointment is required and can be made by calling 215 898-4680.

Mr. Kevin Verduer, Peterson Imaging, Inc.

Mr. Todd Bason, A.J. Buck & Son, Inc.

Mr. Barry Furman, Daniel's Pharmaceuticals, Inc.

Not shown, The Lams Company
We'd like to hear your praise, criticisms or comments. Please address your correspondence to: Helma Weeks, University of Pennsylvania, School of Veterinary Medicine, 3800 Spruce Street, Philadelphia, PA 19104-6008 (215) 898-1472.

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CALENDAR

May 18 Alumni Day, New Bolton Center
Alumni Dinner Dance, Hotel DuPont, Wilmington

May 17 Senior Student Dinner Dance, Radnor Hunt Club

May 20 Commencement, Annenberg Theatre, Philadelphia

June 5 Continuing Education, Small Animal Radiology, Chest, VHUP

June 12 Continuing Education, Small Animal Radiology, Abdominal Radiology, VHUP

Bellwether 30
University of Pennsylvania
School of Veterinary Medicine
3800 Spruce Street
Philadelphia, PA 19104-6008

Address correction requested