From The Dean

Dear friends:

The Summer and early Fall have been an exciting time for the School. We were successful in obtaining State funding, as well as the necessary bridging from the University to allow the School to move ahead with its programs. Our August fund raiser in Saratoga was a major success, followed by the new academic year when recruitment for twenty standing faculty positions was initiated. In October we dedicated the Mari Lowe Center for Comparative Oncology. With an endowment of more than $4 million, the Center will prove a major asset for the School’s research, teaching, and clinical programs.

This bellwether message is my last as dean. Effective January 1, 1994, Dr. Alan Kelly, Chairman of Pathobiology, will assume the acting deanship until a permanent dean is recruited. Paula and I valued our opportunity to serve the School and to work over the years with so many of our friends and supporters. We thank you for your efforts and friendship.

Edwin J. Andrews, V.M.D., Ph.D.

James Serpell Appointed to Moore Chair

Dr. James Serpell has arrived at the School to become the first occupant of the Marie A. Moore Chair in Humane Ethics and Animal Welfare. Serpell comes to Penn from the University of Cambridge, England, where he was founder and director of the Companion Animal Research Group.

An animal behaviorist who has studied animals in the wild and in captivity, Serpell has published numerous books and articles on various aspects of animal welfare and human-animal interaction. His 1986 book, In the Company of Animals: A Study of Human-Animal Relationships (Basil Blackwell) drew praise from both sides of the Atlantic. The New York Times Book Review noted that the book “succeeds in its major objectives: to establish the importance of human-animal relationships and to stake out a moral position from which future exploration can proceed.”

Serpell has served as a consultant to the Royal Society for the Prevention of Cruelty to Animals. He has published numerous books and articles on various aspects of animal welfare and human-animal interaction. He is co-author of Companion Animals in Society (Oxford University Press, 1988), and co-editor of Animals and Human Society: Changing Perspectives, due out next year (Routledge).

“We are exceedingly pleased to have attracted Dr. Serpell to the Moore Chair,” says Edwin Andrews, dean of the Veterinary School. “The lengthy search process first defined what type of scholar should fill this unique chair, and then an international net was cast to find the very best person.

“Dr. Serpell is a distinguished leader in the field of human-animal interaction. We realize more each day how we, as humans, depend on all animals in our environment. As a school that has always been at the forefront of discovery, we are pleased to have Dr. Serpell join our ranks to contribute in this very important field, which will be enriched by his interests, experience and research.”

The Moore Chair, dedicated to studies on animal welfare and human-animal interaction, was established with a gift from the late Marie A. Moore, an animal welfare activist who bred and raced thoroughbreds here and in England for many years. Moore also bred mastiff dogs, and helped re-establish the breed after devastating losses of breeding stock during World War II. Her 1978 book, The Mastiff, gave an overview of the history and development of the breed.

Sally Young
First molecular genetic test for a common inherited disease in companion animals

Small animal practitioners, breeders, and pet owners recognize that inherited disorders occur commonly and are a major problem in companion animals.

Over 400 hereditary diseases have now been reported in dogs; many of them are breed-specific and may occur frequently in a particular breed due to inbreeding or linebreeding practices. Most genetic disorders are inherited as autosomal recessive traits, i.e., affected puppies of both genders have two mutant genes and result from matings of healthy parents that each carry a normal and mutant gene (carriers).

Each inherited disorder presents with typical signs early in life, and the disease course is usually chronic, although intermittent and late onset presentations are seen with some defects. Since other diseases may cause similar clinical signs, routine and special laboratory tests are generally required to confirm a clinical diagnosis. For the control and eradication of genetic diseases it is also important not only to recognize affected animals, but also to identify carriers among littermates and other relatives of diseased animals. Parents of affected animals are obligate carriers. Unfortunately, laboratory tests to screen for healthy carriers are only available for a few inherited diseases in companion animals. They are usually cumbersome and technically demanding, and do not always permit a reliable differentiation between carriers and normals.

The first molecular genetic screening test for a common inherited disease in companion animals has been developed by Dr. Urs Giger's laboratory in the Section of Medical Genetics at the School of Veterinary Medicine, University of Pennsylvania. The test identifies carriers and affected dogs with phosphofructokinase (PFK) deficiency.

Less than a decade ago, Dr. Giger, associate professor of medicine and medical genetics, first described PFK deficiency in English springer spaniels. PFK, a major regulatory enzyme in all cells of the body, catalyzes the metabolism of sugar and is pivotal in the production of energy to maintain normal cell function. Dogs with this enzyme deficiency have diseased red blood cells and muscle cells.

PFK deficiency can present as a mild to life-threatening episodic illness. A hallmark sign of this disease is intermittent dark urine, with the color of the urine ranging from orange to dark coffee-brown, which commonly develops following strenuous exercise, prolonged barking, and extensive panting. These conditions accelerate the destruction of red blood cells in affected dogs, resulting in dark brown urine, and in severe forms, pale gums (anemia) or jaundice (yellow coloration of skin and gums) with fever and poor appetite. Particularly in field trial dogs, clinical signs of weakness, exercise intolerance, poor performance to outright refusal to move, and muscle cramps may be observed. Clinical manifestations usually resolve within hours to days. Affected dogs have a relatively normal life expectancy, however, situations that can precipitate such crises should be avoided.

This disorder is inherited as an autosomal recessive trait and has now been identified in over 50 English springer spaniels. It appears to be more common in the field trial line than in show dogs, but the true frequency of affected and carrier dogs is not known. Furthermore, the same disease has also recently been found in an American cocker spaniel.

Dr. Bruce F. Smith, a graduate student and Kleberg fellow in Medical Genetics at Penn's veterinary school, discovered that PFK deficiency and the associated clinical features are caused by a single base pair change (mutation) in the genetic code of the gene for this enzyme. Thus far, only a handful of hereditary diseases in the dog have been characterized at the molecular level, PFK deficiency being the first common hereditary disorder.

Such genetic information is needed to better understand the mechanism of the disease process, and is essential to establish mutation-specific screening tests. The molecular genetic screening test for PFK deficiency developed by the Penn researchers is accurate in determining whether a dog is normal, affected, or a carrier. The test reveals two mutant PFK gene copies in affected dogs, one mutant and one normal PFK gene copy in carriers, and two normal PFK gene copies in normal dogs.

Continued on next page
First molecular genetic test
Continued from page 1

The test requires only a few drops of blood from which the genetic code (DNA) is extracted and tested for the presence of the mutation by a polymerase chain reaction, a modern laboratory technique. Dogs can be tested at any age, even right after birth, allowing early determination of whether an animal has affected, carrier, or normal status.

Because of the intermittent and variable clinical signs and the suspected high prevalence of PFK deficiency in the English springer spaniel breed, Dr. Giger recommends the testing of all English springer spaniels with suggestive clinical signs and all springers used for field trialing or breeding, or prior to purchase of a springer puppy. Affected dogs should not be bred, and appropriate precautions taken to ensure their health and welfare. It is not recommended that carrier dogs be used for breeding; however, if they are bred, they should only be bred to dogs tested as normal, and all of the resulting puppies should be tested. Carrier puppies should be neutered and normal puppies used to continue the breeding program. By testing and breeding appropriately, PFK deficiency can be rapidly eliminated from this breed, and the further spread of this disease and future suffering of affected animals can be prevented.

For further information on testing dogs, please contact Drs. Urs Giger/Beth Callan, School of Veterinary Medicine, University of Pennsylvania, 3850 Spruce Street, Philadelphia, PA 19104-6010 (FAX 215-573-2162).

National Award for Penn Researcher

A Burroughs Wellcome Fund New Investigator Award in Molecular Parasitology for 1993 was awarded to Dr. Phillip Scott, assistant professor of parasitology at the University of Pennsylvania School of Veterinary Medicine. The $60,000 award, provided over two years, will enable Dr. Scott to continue his work on the development of a vaccine against leishmaniasis. This disease, caused by a parasite, affects man and animals in Central and South America, Africa, southern Europe and the Middle East. If not treated it can cause severe disfigurement and even death.

Dr. Scott's research focuses on studying the immune responses associated with the parasite, Leishmania. The foundation for the studies are Dr. Scott's observations that the stimulation of different types of immune cells determine whether the parasite is eliminated, or whether the infection is eventually fatal. These findings are useful not only in understanding leishmaniasis but also in understanding immunity in several other diseases, since these different cell types are important in controlling many infectious diseases, including parasitic, bacterial and viral infections, as well as allergies and autoimmune disease. Thus advances made in the leishmanial model may be widely applicable.

In the past, vaccine development has been, for the most part, done empirically. Dr. Scott's research will involve identification of molecules that act to stimulate the development of particular types of immune cells. With this knowledge, it is thought that researchers may be able to design vaccines of the future more rationally.

The Molecular Parasitology Award Program is offered annually by The Burroughs Wellcome Fund to recognize the pioneering contributions of Sir Henry Wellcome to the study of tropical medicine, and to support the application of modern developments in biology and chemistry to the understanding, control and prevention of parasitic diseases.

Dr. Scott is the first researcher associated with a veterinary school to receive the award. Two other 1993 New Investigator awards were presented to scientists at other institutions.

The Burroughs Wellcome Fund is a private, non-profit foundation established in 1955 “To provide financial aid for the advancement of medical knowledge by research, and for other scientific, scholarly and educational purposes.”
Nuclear scintigraphy added at New Bolton

New Bolton Center has added nuclear scintigraphy to its array of diagnostic tools. This nuclear medicine technique allows for early diagnosis of bone and tissue injuries. It involves the injection of radioactive material, or radioisotope, into the horse and measurement of the uptake of this material in various tissues.

In a regular X-ray, a beam produced by the X-ray machine, is passed through the horse's leg and is taken up by X-ray film. The film is processed and an image produced. For scintigraphy the horse is injected into the jugular vein with a radioisotope which is bound to a marker specifically taken up by bone. The radioisotope circulates through the blood vessels of the limb, the soft tissues, and finally bone, where it localizes for hours.

The radioisotope emits a low-level gamma ray which is measured by a gamma ray camera, and the image produced for scintigraphy the beam and the camera detects it. Normal bone or tissue takes up low levels of the radioisotope, but injured bone or tissue with increased circulation shows intense uptakes and results in "hot spots" or dark areas in the scan.

Using scintigraphy, veterinarians can diagnose problems quickly, within hours or days after injury, and can diagnose subtle injuries not detectable by conventional techniques. Healing of the bone can be carefully assessed using the technique, and veterinarians can judge when training or racing can be resumed safely. When this technique is used, the horse has to be hospitalized for three days to meet radiation safety regulations.

While scintigraphy is now used most commonly for orthopedic problems, future use will include ventilation/ perfusion studies and cardiac evaluation.

Nuclear scintigraphy is part of the Sports Medicine Program at New Bolton Center. The new equipment is housed in a separate building on the Widener Hospital premises.

Curricular Change

Veterinary curricula are constantly being evaluated, updated, and changed. No area has undergone more scrutiny than the teaching of surgery. Veterinarians must be competent in all areas immediately following graduation, as there are no requirements for internship or residency. In order to better educate our students in surgery, while recognizing changing societal attitudes regarding the use of animals in teaching, we have made several changes.

The core (required) surgery courses have been revised over the past academic year. Introductory Surgical Principles, previously only a lecture course, has had laboratories added. Using artificial models, students learn how to suture, tie knots, prepare surgical sites, and handle instruments. They also first experience hard scrubbing, gowning, gloving, and surgical draping. None of these laboratories utilizes animals.

Clinical Orthopedics has also added laboratories to reduce animal use. These involve reading radiographic films for orthopedic disease and fracture case management; a splinting lab using plastic limbs; and a pinning and wiring techniques lab using plastic bones.

Perhaps the most important revision is the elimination of purpose bred dogs from Clinical Exercises. The Pennsylvania S.P.C.A. is providing intact female dogs for this course. Each group of three students is responsible for three dogs.

Students alternate as the surgeon, assistant surgeon, and anesthesiologist. Following normal post operative care, the dogs are returned to the P.S.P.C.A. for adoption.

The P.S.P.C.A. has also agreed to provide intact male or female dogs or cats to give our fourth year students more opportunities to spay and neuter in a neuter clinic setting. These animals will also all be returned to the P.S.P.C.A. for adoption.

We feel that these changes will better prepare our students as surgeons, while acknowledging societal change and helping the P.S.P.C.A. deal with pet overpopulation. Residents of the Commonwealth benefit as better educated veterinarians graduate to serve their needs.
PennHIP™ - a collaborative effort to reduce the incidence of canine hip dysplasia

PennHIP™, a nation-wide collaborative effort, whose main objective is to reduce the incidence of hip dysplasia (CHD) in all breeds of dogs, has been initiated by Penn's Veterinary School. The program, conceived by Dr. Gail K. Smith, associate professor of surgery, and his staff, involves a group of specially trained and certified collaborators from all over the United States and Canada.

The program brings a new diagnostic technology, developed over the past ten years here at Penn, closer to breeders of dogs and enables Smith and his collaborators to gather definitive data on hip dysplasia in many breeds in a shorter time.

For many years breeders of dogs have tried to reduce the incidence of canine hip dysplasia, a very common, heritable orthopedic disorder. By screening breeding stock through radiographic examination of the hip joint. Until the Penn researchers developed their compression/distraction stress radiograph technique, the disease was diagnosed by the standard hip-extended radiograph. Studies have shown that the latter may not fully identify dogs with lax hips, thus explaining the lack of progress in reducing the incidence of hip dysplasia in the canine population.

The new stress-radiographic technique is 2.5 times more sensitive in quantifying hip laxity than the standard hip-extended method. A measurable amount of hip joint laxity is inherent in all dogs. The range of this laxity is quantified by a new index scale, ranging from zero to 1. Hips approaching zero are extremely tight, and hips approaching 1 are extremely lax.

Breeds of dogs frequently afflicted with canine hip dysplasia have mean hip joint laxities significantly greater (2-3 fold) than breeds known to be free of CHD, e.g., racing greyhounds and performance-bred borzois have uniformly tight hips (median laxity less than 0.25) while golden retrievers have significantly looser hips (median laxity approximately 0.57).

A significant correlation exists between hip joint laxity measured in an individual at four months of age and that measured at six, 12 or 24 months of age. These data indicate that hip laxity can be determined with acceptable accuracy as early as four months. A direct comparison of the new diagnostic method with the standard hip-extended method revealed the superiority of the distraction method for degenerative joint disease prediction.

This predictability of joint laxity from a young age becomes especially meaningful when combined with data showing that only those dogs with measured passive hip laxity greater than 0.3 were susceptible to CHD within the time frame of the study (three years). No hip disease was observed below a distraction index of 0.29. Thus the index of approximately 0.3 may represent a biological threshold separating CHD negative from CHD susceptible hips.

The golden retrievers in the study had a median distraction index of 0.57, indicating a joint laxity well into the “disease-susceptible” range if compared to data from German shepherd dogs. In fact, less than 5% of the golden retrievers exhibited joint laxities below a distraction index of 0.3, suggesting that very few breed members presently can be considered true negatives for CHD.

The data indicate that the susceptibility for degenerative joint disease based on passive hip laxity is breed specific. For example, German shepherd dogs are more predisposed to DJD, given the same laxity, than Rottweilers. On a population basis the disease susceptibility is extremely sensitive to the distraction index, irrespective of breed. In the future, accurate clinical disease prediction will require the application of statistical/epidemiological analyses to all breeds, hence the need for PennHIP.

The discovery of a laxity threshold below which hips are nonsusceptible to CHD may serve as a breeding goal for all breeds of dogs, making passive hip laxity as measured by the distraction index (DI) an objective criterion for selecting breeding animals.

Clearly for breeds having loose hips, this goal will not be attainable within one generation of selection. The effective clinical application of this new paradigm to all breeds of dogs awaits knowledge of the heritability of hip laxity by breed and its relationship with other important traits. PennHIP was designed to investigate this.

Variations in hip joint laxity may arise from genetic or non-genetic factors. Genetic factors which produce variation in a population originate from either additive gene effects or from dominance and epistasis which are non-additive. Additive gene effects are passed from parents to their offspring each generation. In contrast, the effects of dominance and epistasis stem from the formation of unique combinations of alleles and these unique combinations must be re-created anew in every individual of each succeeding generation.

When additive genetic differences among individuals are responsible for a significant proportion of the total phenotypic variation, the population mean (for hip joint laxity) can be genetically moved by applying selection to the choice of breeding animals. Knowledge of how to best apply genetic selection comes from knowing what is the heritability of joint laxity. The investigation of the genetics of passive hip laxity in the German shepherd dog is near completion. The scale of heritability ranges from 0 to 1. 0 being not heritable and 1 being highly heritable. The calculated heritability for hip joint laxity in German shepherds will likely fall between 0.45 and 0.74. These estimates are considerably higher than those published in reports utilizing the standard hip-extended method of hip evaluation. The estimates provide considerable encouragement that the new stress-radiographic method will serve as a powerful tool for selection of breeding stock free from susceptibility for CHD. Similar analyses must be applied to other breeds of dogs.

The introduction of the compression/distraction method into the ever-
Dr. Gail Smith, associate professor of surgery, examines radiographs. The radiograph on the left shows the standard hip extended view. The top radiograph on the right shows a compression view of the same dog, and the film on the bottom right shows the distraction view of the same dog. On the distraction view subluxation is evident.

Dr. Gail Smith, associate professor of surgery, examines radiographs. The radiograph on the left shows the standard hip extended view. The top radiograph on the right shows a compression view of the same dog, and the film on the bottom right shows the distraction view of the same dog. On the distraction view subluxation is evident.

When a radiograph is sent in, it will be measured for distraction index and the data along with the included minimum database on age, breed, sex, etc., will be compiled in the PennHIP database. Individual hip interpretation relative to breed will be derived from this pool of data. The fee for this analysis is $20 per dog.

At this time 42 collaborators have completed the training program. Their names and the towns where the practices are located are listed below:

ARIZONA: Dr. Roger C. Penwick, Tucson Veterinary Surgical Service, Tucson, AZ.
CALIFORNIA: Dr. Edgar M. Church, Animal Emergency and Trauma Center, Norwalk, CA; Dr. Pam Green, Veterinary Centers of America Animal Hospitals, West Los Angeles, CA; Dr. Larry Y. Kerr, Santa Cruz Veterinary Hospital, Santa Cruz, CA.
CONNECTICUT: Dr. Terry L. Dew, Connecticut Veterinary Center, West Hartford, CT; Dr. Steven J. Heyman, Cheshire Veterinary Hospital, Cheshire, CT; Dr. Richard Lau, Cheshire Veterinary Hospital, Cheshire, CT.
FLORIDA: Dr. Jaco J. De Haan, Affiliated Veterinary Specialties, Winter Park, FL.
GEORGIA: Dr. Jon Chambers, University of Georgia, College of Veterinary Medicine, Athens, GA; Dr. Mary H. Mihaylo, University of Georgia, College of Veterinary Medicine, Athens, GA.
ILLINOIS: Dr. William Gengler, Animal Hospital of Verona, Verona, IL; Dr. Gregg T. Greiner, Burr Ridge Animal Surgical Practice, Burr Ridge, IL; Dr. Douglas L. Hammer, Veterinary Surgical Service, Norwood Park Animal Hospital, Norridge, IL; Dr. Jack K. Schaefler, Aurora Animal Hospital, Aurora, IL.
INDIANA: Dr. A. D. Elkins, Indiana Veterinary Surgical Referral Service, Indianapolis, IN.
MASSACHUSETTS: Dr. Kathy Beck, Angell Memorial Hospital, Boston, MA; Dr. William B. Henry, South Shore Veterinary Association, Weymouth Veterinary Hospital, South Weymouth, MA; Dr. Joseph M. Stoyak, Rowley Veterinary Animal Hospital, Springfield, MA.
MARYLAND: Dr. Russ Patterson, Vet Referral Associates, Inc., Gaithersburg, MD.
MINNESOTA: Dr. Gary Nover, Quarry Hill Park Animal Hospital, Rochester, MN.
NEW HAMPSHIRE: Dr. Peter L. Wadsworth, Dover Veterinary Hospital, Dover, NH.
NEW JERSEY: Dr. David T. Horn, Shore Veterinarians, West, Williamstown, NJ.
NEW MEXICO: Dr. Frank H. Ceinc, Manzano Animal Clinic, Albuquerque, NM.
NEW YORK: Dr. Amy Karpin, Animal Medical Center, New York, NY; Dr. John Laurie, Orchard Park Veterinary Medical Center, Orchard Park, NY; Christopher Thatcher, Animal Medical Center, New York, NY; Dr. René T. Venee, Veterinary Referral Service, Kenmore, NY.
OHIO: Dr. Robert A. Montgomery, Town and Country Veterinary Clinic, New Philadelphia, OH; Dr. Wendy Myer, Ohio State University, Veterinary Teaching Hospital, Columbus, OH; Dr. Tom Vangundy, Metropolitan Veterinary Hospital, Akron, OH.
Pennsylvania: Dr. Sherilyn Allen, Ironstone Veterinary Hospital, Boyertown, PA; Amy Crawford, VHIP, Philadelphia; Dr. Anna Feng, VHIP, Philadelphia; Thomas P. Gregor, VHIP, Philadelphia; Dr. Peter Herman, Chester, PA; Dr. Joan Regan, VHIP, Philadelphia; Dr. Gail K. Smith, VHIP, Philadelphia.
PUERTO RICO: Dr. Carlos Monigil, Rio Piedras, PR.
TENNESSEE: Dr. Samuel L. Beckman, Tennessee Valley Veterinary Surgical Referral Center, Nashville, TN.
TEXAS: Dr. Linda D. Homko, Texas, A&M University, College of Veterinary Medicine, College Station, TX; Dr. Catherine Laszlo, Animal Radiology Clinic, Dallas, TX.
WISCONSIN: Dr. Michael Hayman, Foster-Smith Northwoods Animal Hospital, Minocqua, WI.
The 16th Annual Feline Symposium was held on April 11 at VHUP. It included presentations by faculty members and the Parade of Breeds with Mr. Richard Gebhardt. Following the lectures, a wine and cheese reception for symposium participants, hosted by Mrs. R. V. Clark, Jr. and Mrs. Edith Young, was held. Following are summaries of some of the faculty presentations.

**Feline Toxicoses**

Cats are unusual in the way they metabolize certain compounds, said Dr. Kenneth J. Drobatz, assistant professor of emergency medicine and director of VHUP's 24-hour emergency service, and they cannot tolerate various substances that are innocuous to many other species. Dr. Drobatz highlighted the causes, mechanisms, clinical signs, treatments and preventive measures inherent to some of the more prevalent feline toxicoses.

"Cats are very fastidious and picky about what they eat," Dr. Drobatz said. "In general, we don't see them getting into toxins on their own very often."

Case in point: organophosphates. Among the most common feline toxicoses, organophosphate toxicosis may occur in cats dipped in flea products containing organophosphates. Carbamates, another class of compounds in many insecticides and, though toxic in certain cases, are generally not as poisonous to cats as are barbiturates and organophosphates.

Symptoms manifest in overexposed cats include hypersalivation, vomiting, diarrhea and muscle tremors. Behavioral changes may run the gamut from depression to hyperexcitability. Cats suffering from pyrethrin/pyrethroid toxicosis should be bathed and their vital signs monitored. Valium may be administered to control seizures and activated charcoal given or vomiting induced to inhibit further toxin absorption.

Treatment for these topical poisonings, while often effective, is certainly no substitute for prevention, said Dr. Drobatz. "Be sure the flea products you use are formulated for cats." But, he added, bear in mind that sensitivity may vary among individuals.

Certain drugs are also lethal to cats, said Dr. Drobatz. Because cats "are unique in the way the metabolize drugs."

Acetaminophen intoxication is seen with some frequency at VHUP's emergency room. Tylenol, whose active ingredient is acetaminophen, is occasionally given to sick cats by owners unaware of its consequences.

Cats lack a specific glucuronosyl transferase necessary to metabolize acetaminophen. Acetaminophen affects the conversion of hemoglobin, responsible for carrying oxygen through the circulatory system, to methemoglobin, which has poor oxygen-transporting properties and gives the blood a brownish tinge.

Other signs of acetaminophen intoxication include swelling of the face and paws, cyanosis (bluish coloration) of mucous membranes and ear pinnae, hypersalivation, vomiting, hypothermia, tachycardia, dyspnea (respiratory distress, often signaled by panting), ataxia (impaired physical coordination) and lethargy.

Prompt veterinary care is necessary, and patients may be put into an oxygen cage to help restore blood oxygen levels. Inducing vomiting, if poisoning has occurred within the last three to four hours, and gastric lavage may be helpful. Activated charcoal may then be administered orally to prevent further toxin absorption.

Cimetidine, which inhibits the conversion of acetaminophen to other toxic metabolites, and N-acetylcysteine and ascorbic acid (vitamin C), which aid in the reconversion of methemoglobin to hemoglobin, may also be administered. Fluid therapy and basic supportive care may follow.

Acetaminophen intoxication is sometimes fatal, but patients that show signs of recovery 48 hours after treatment usually survive. Recovery may be monitored by checking gum color, which usually resumes a pinkish tone about 36 hours after treatment.

Aspirin intoxication, less common in cats, manifests itself through a variety of non-specific symptoms. These include elevated body temperature and respiratory rate, vomiting, diarrhea, ataxia and hyperexcitability. Aspirin absorption may be inhibited by inducing vomiting or administering activated charcoal.

Drug toxicosis is usually avoidable if owners defer the design of treatment regimens to veterinarians. "If you're thinking of giving your cat anything, I don't care how benign it seems," Dr. Drobatz advised, "call your veterinarian first."
Antifreeze, or ethylene glycol, is one of the few dangerous substances that cats may consume voluntarily. Ethylene glycol itself is nontoxic to cats, but its metabolites are toxic. The lethal toxic dose in cats is 1.5 ml/kg. "A little over a teaspoon can potentially kill a cat," said Dr. Drobatz.

Clinical manifestations occur in three stages. The central nervous system becomes affected during stage one, thirty minutes to twelve hours after poisoning; signs include seizures, stupor or coma. The cardiopulmonary system is affected and tachycardia becomes evident in stage two, which occurs during the next twelve hours. Stage three follows, and with it, the deterioration of renal function.

"If we have a cat that comes in and is in kidney failure," Dr. Drobatz said, "the prognosis that we’ll be able to save it is pretty poor." Diagnosis includes measurement of blood osmolality, which increases with intoxication. In severe cases, crystals may be present in the urine, so urinalysis is often recommended. Serum ethylene glycol concentration may also be measured.

Dr. Drobatz also recommended activated charcoal to prevent further ethylene glycol absorption, intravenous fluids to diurese the kidneys and intravenous ethanol to inhibit the conversion of ethylene glycol to toxic compounds. The credo, "A little knowledge is a dangerous thing" is very relevant in feline toxicosis prevention. Before giving your cat a new substance, either orally or topically, consult a veterinarian.

Feline Reproduction

Cats are very prolific. A walk down almost any city street will bear witness to this fact. However, said Dr. Margret L. Casal, resident in medical genetics and pediatrics at VHUP, cats may encounter a number of difficulties procreating. Dr. Casal focused on normal feline reproductive cycles, abnormalities affecting fertility, pregnancy and parturition, and ways in which to determine breeding fitness of individual cats.

Toms are born with descended testicles, which may move up and down until puberty, about 6-8 months of age. They may remain fertile through 14 years of age.

Queens become fertile at 4-12 months of age and their reproductive life normally spans 8-10 years. From January/February through October/November, fertile queens go into heat approximately every 20 days. Feline heat cycles, which last 12-20 days during breeding season, are affected by light and temperature. In areas where temperature is constant and there are approximately 14 hours of daylight each day, queens may cycle throughout the entire year.

Proestrus, which occurs in about one in five cats, lasts two or fewer days. During this time, the queen exhibits signs of heat but is unreceptive to the tom. Estrus, or heat, follows and lasts 5-8 days, on average. During estrus, the estrogen level rises and the queen usually permits the tom to mount. The estrogen then falls, and the queen enters the nonestrus phase of about 10 days. The next heat cycle follows shortly thereafter.

Before mating cats, said Dr. Casal, it is important to determine their breeding suitability. "A good breeding tom and queen should come from healthy litters of good size and from queens that had no difficulties giving birth or rearing litters," Dr. Casal said.

The health history and results of a physical examination which may, in certain cases, include a semen evaluation, should also be taken into account. Queens should have regular heat cycles. Both queens and toms should be free of any genetic defects.

Mating normally lasts approximately four minutes and the queen ovulates shortly afterwards. The probability that a pregnancy will result from a single mating is about 50%, and queens may allow as many as thirty matings per day.

Pregnancy, which is accompanied by a fall in the estrogen level, causes a rise in progesterone, can often be detected by palpation as early as day twenty. Ultrasound can normally be used to monitor fetal heart rate and development after the twenty-sixth day of pregnancy.

Gestation generally lasts 64-69 days and, about one week before giving birth, the queen’s temperature, normally 101.5 degrees, drops to 98-99 degrees. She begins to prepare a birthing area about 12-24 hours before going into labor.

Once labor begins, the queen’s temperature drops another 2-3 degrees, and the first kitten is normally born about four hours later. The usual time interval between kittens is 30-60 minutes and the average litter size is four.

Pregnancy may not follow this normal course when cats with fertility problems are bred. Chromosomal abnormalities and aberrations in sexual differentiation and development of reproductive organs may render both toms and queens infertile. Bite wounds to the testicles, if not treated properly, may cause sterility in toms.

Viral infections, such as feline leukemia virus (FeLV), feline immunodeficiency virus (FIV), feline rhinotracheitis virus (FRTV), feline infectious peritonitis virus (FIP) and feline panleukopenia virus (FPV), may impair the overall fitness of breeding populations.

Dr. Casal advised keeping breeding cats indoors and limiting their contact with outdoor cats. She also recommended testing new additions to the cattery for FeLV, FIP, FIV and toxoplasmosis and quarantining them for at least two to six weeks before introducing them into the population. "This is important," said Dr. Casal, "because these viruses can be transmitted from animal to animal and resultant infections may debilitate queens and arrest their heat cycles."

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Feline Reproduction
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Malnutrition and obesity may reduce feline fertility which, in toms, can also be impaired by hypothyroidism, hypervitaminosis A and stress. Other possible causes implicated in female infertility include hormonal imbalances, improper lighting, estrogen-producing cysts, concurrent diseases and lack of exposure to other cats.

Pregnancy is not always trouble-free either, said Dr. Casal. "Viral infections, particularly FIP, FeLV and FRV, suppress the immune system and may lead to fetal death. FIP can also cause malformation of kittens."

Pyometra and other bacterial infections, which may affect the pregnant uterus, are generally easier to detect than viral infections because obvious clinical signs are usually present. These may include fever, lethargy, appetite loss and yellow-green vaginal discharge.

Malnutrition. spontaneous drops in progesterone, vaccinations and certain medications given during pregnancy may lead to abortions or abnormal fetal development. "I always say, 'the only drug you can give a cat during pregnancy is water,'" Dr. Casal remarked.

As in people, many things can go awry in cats during birthing. Obstructions caused by accident-related malformations of the birth canal and uterine rupture or torsion may render normal delivery impossible.

Uterine inertia, a condition in which the uterus fails to contract, may be caused by malnutrition, calcium deficiency, concurrent disease and acute fatigue. The primary clinical sign is a rise in body temperature 6-12 hours after the initial drop, with no kittens being born. The presence of oversized, malformed and dead fetuses may also interrupt parturition.

Immediate veterinary attention should be sought if problems develop during pregnancy or birthing, said Dr. Casal, and proper breeding management should be undertaken as a preventive measure. These precautions will, over the long run, strengthen gene pools and enhance feline breeding fitness. J.C.

Postvaccinal Tumors in Cats

An increasing number of vaccination-site tumors have been seen in cats since 1987. A study conducted by Dr. Mattie J. Hendrick, assistant professor of pathology at the School, found this phenomenon to be very real, but also very rare. Dr. Hendrick described this condition, its possible cause and its implications.

The increased occurrence of vaccination-site tumors corresponds to the timeframe in which Pennsylvania's law mandating rabies vaccinations has been in effect. Between 1987 and 1991, the incidence of fibrosarcomas rose from 3.6% to 5.8% of feline biopsies. Most of this increase is attributed to tumors at vaccination sites - the hind limbs and dorsal neck and thoracic regions.

Not to be confused with the inflammatory reactions that may occur at injection sites following inoculation, these fibrosarcomas appeared upon biopsy, a proliferation of neoplastic spindle cells often surrounding a necrotic center and surrounded by an inflammatory cell infiltrate filled with macrophages.

The macrophages were found to contain brownish-gray, crystalline material, identified as aluminum and oxygen. Interestingly, 20% of feline vaccines contain aluminum adjuvants, substances added to drug products to enhance their action.

"How and why this is happening," said Dr. Hendrick, "we don't know exactly. One hypothesis is that the adjuvant is causing a local, persistent inflammatory response. In the healing process, some of the cells that proliferate are fibroblasts. These fibroblasts may become neoplastic."

Similar tumor formation has also been found to occur in people with aluminum oxide hip replacements, but this particular phenomenon seems to be unique to cats. "It seems that there's something different about... their fibroblasts or their healing process," said Dr. Hendrick, "that the right stimuli can cause tumor formation."

Based on other published reports and personal communications, it appears that this phenomenon occurs throughout the U.S. and parts of Canada and Europe, but that its frequency is very low, from 0.1% - 0.1%. The research findings conclude that the occurrence of postvaccinal tumors in cats is not limited to the rabies vaccine or vaccines containing aluminum.

"I don't want you to get the impression from what I'm saying that you should stop vaccinating your cats..." Dr. Hendrick said. "The risk of other diseases far outweighs the risk of this entity."

Dr. Hendrick recommended that owners monitor vaccination sites regularly. "The earlier they're found and surgically removed," she said, "the better the chances of nothing bad happening to your cat."

Canine and Feline Symposia

The 24th Annual Canine Symposium "Your Veterinarian and Your Dogs" will be held Saturday, January 29, 1994 at the Veterinary Hospital of the University of Pennsylvania in Philadelphia.

Topics will include canine nutrition, genetic screening and genetic diseases of dogs, canine emergencies, and the PennHIP™ Program and skeletal problems of dogs.

The 17th Annual Feline Symposium will be held Saturday, April 16, 1994 at the Veterinary Hospital of the University of Pennsylvania in Philadelphia.

Topics will include feline pediatrics, dental management for cats, feline immunization, and feline diabetes. Mr. Richard Gebhardt, past president of the Cat Fanciers Association, will present his annual Parade of Breeds, and a grooming demonstration by Ms. Kathy Champion will also be featured. A tour of VHUP will be available following the formal presentations.

The cost of each all-day program is $45, which includes lunch and parking. Reservations are required. To be placed on the mailing list for the detailed program, please write Dr. M. Josephine Deubler, School of Veterinary Medicine, VHUP, 3850 Spruce Street, Philadelphia, PA 19104.
Avaceratops lammersi comes "home"

As part of the Fourth of July festivities in Harlowton, Montana, a homecoming of sorts for *Avaceratops lammersi* was celebrated.

*Avaceratops lammersi*, a specimen of a small horned dinosaur, was discovered in 1981 on the Careless Creek Ranch near Shawmut, Montana. The following year, Dr. Peter Dodson, professor of anatomy at the School, participated in further excavation. In 1983 the specimen was brought to the Academy of Natural Sciences in Philadelphia. In 1986 Dr. Dodson named it *Avaceratops lammersi*. The first name honors Ava Cole, one of the discoverers of the skeleton, and the second name honors the Lammers family on whose land the dinosaur was found. It is the most complete dinosaur skeleton ever found in the Judith River Formation of Montana.

Two years ago an effort began to raise funds to produce a skeletal replica that could be given to the people of Harlowton to be placed in the Historical Society Museum there. By the beginning of 1993 the funds had been raised and Paul Penkalski produced a high fidelity cast of the original skeleton. It was unveiled during festivities on July 3, 1993, and *Avaceratops lammersi* has a permanent home not too far from its ancient resting place.

The casting of the skeleton and its installation were made possible through the generous support of Anne C. and Edward V. Dillon, Mrs. Roland T. de Hellebranth, *Highlights for Children*, Pamela and Allen Model; and Byron Preiss Visual Publications, Inc.

Dr. Peter Dodson and the newly installed *Avaceratops lammersi*.

Loren H. Evans Day

Friday, May 28, 1993, was officially declared "Loren H. Evans Day at New Bolton Center", in honor of the retirement of Dr. Loren H. Evans, professor of surgery, following his 32 years of dedicated service to New Bolton Center, the Veterinary School and University.

The event was celebrated with a day-long continuing education program featuring 19 speakers, equally distributed within the School as well as across the country. Speakers and former students, interns and residents of Dr. Evans gathered to report updates in equine veterinary medicine. The sessions focused on the recent advances in respiratory surgery, lameness diagnosis, equine colic and abdominal surgery, as well as orthopedic diseases.

The day culminated in the unveiling of a portrait of Dr. Evans which will hang in his honor at New Bolton Center and a reception for the 100+ attendees, hosted in the Allam House.
Graduation

The graduation ceremonies for the 108th class were planned for 2:30 PM on May 17th in the Zellerbach Theatre at the Annenberg Center. Just as the procession of faculty and students assembled, electric power went out. Everyone waited, but after a while it became clear that the power would not be back soon. Chairs were set up outside, generators were produced to provide power for an amplification system, and the graduation ceremonies commenced under a bright and sunny sky on the Annenberg terrace.

Dr. Robert A. Whitney, Jr., deputy surgeon general and a veterinarian, gave the commencement address. Dean Andrews, assisted by Assistant Dean Jeffrey A. Wortman, Associate Dean Charles Newton, and Dr. Charles Benson, professor of microbiology, presented diplomas to 69 women and 36 men. After the ceremony, graduates, their families, and the faculty stayed for refreshments, picture taking and good-byes.

Class of 1993
JoAnn Marie Andrzejewski
Lance Harris Bassanez
Ann Elizabeth Bastian
Dennis Richard Bell
Eric Paul Belleville
Laurie Bergman
Cheryl Elfredie Boehm
Elysia Michele Braunstein
Meredith Marie Brown
Randall Thomas Busch
Alexandra Chisholm Carlisle
David Michael Chico
Heather Harris and Closser
Mindy A. Cohan
Christine Rauz Czarnecki
Cynthia Stevens Dahle
David Victor Daverio
Adam Gregory Denish
David Whitman Diamond
Mark Thomas Donaldson
Amy Louise Dowd

Christopher Robert Dutton
Evan Andrew Fenberg
Maureen Fish
Terresa M. Fitzgerald
Luaren Pauline Plato
Kathleen Maria Furey
Hannah Lora Galansino-Homet***
Donald Joseph Garber
William Geiler
Jan Valerie Ginsky
Donald Arthur Gooss, Jr.
Denise Marie Atkinson Hall
Mark William Hanlon**
Marilyn Ann Hannon
Amy Lynn Hartman
Christopher Michael Hill
Jody Marie Hoffman
Amy Humphrey Hollengren
David T. Horn
Jo Anne Hughes-Bair
Arthur Ray Hufnaker

Wendy Kay Hunt
James Anthony Ise
Patricia Michelle Jampietro
Patricia Mamie Jones
Jay Jasan
Jennifer Felicia Johnson
Nancy Katz
Nancy Anne Kauder
Bruce Edward Keck
Leah Robin Knodel
Teresa Stefania Kuszni
Felicia Dee Langel
Thomas E. Larrimer
Crystal Monique Lauterdale
Sharon Rae Levanduski
Serena Mei-Sen Liu***
Deborah Carin Mandell***
Lynne Halleen Mazzoni
Denise McAlister
Mary C. McCabe
Holly Beth Mehew
Steven Howard Mensack
Rhona Jennifer Mallard
Stephanie G. Munor
Elizabeth Young Moran
Lisa Moses
Jennifer Chris Pembry
Nicolee A. Petervary
Marie Lisa Plati
John Russell Price
Jonathan Morris Rapaport
Gail Dianne Reidel
Michele Stephanie Rundell
David Mark Rutledge
Jennifer Lynn Schori-Deery
Lisa Fran Schorr
Carol Marjorie Schwartz
Amalia E. Seggos-Marin
Michele Servideo
Marc Lee Siebert
Joseph Patrick Siko
Christopher Philip Slade
Carolyn Beth Slavin
Margaret Mary Sleeper

Randy Scott Stilker
Craig Mitchell Smith
Lauren Joyce Smith
Adam E. Snider
Bev Clapton Squires
Mari Stanik
Elizabeth Kingsley Stanley
William Stokes-Caveney
Willard L. Stoltzfus
Susan Jean Stroup
Joseph Valerie Super
Heather Marina Swann
Anne Michele Trammell
Nancy Vult
Michael Gordon Wills
Judeh Ann Williams
Kerry Lynn Zeitler
Micaela Zirkle
L. David Zuschlag

*Summa Cum Laude
**Magna Cum Laude
***Cum Laude
Award Recipients

Leonard Pearson Prize
Mark William Hanlon

J.H. Lippincott Prize
Lance Harris Bassage III

1930 Class Prize in Surgery
Lance Harris Bassage II

Auxiliary to the American Veterinary Medical Association Prize
Meredith Marie Brown

Auxiliary to the Pennsylvania Veterinary Medical Association Prize
Margaret Mary Sleeper

1956 Class Medal for Achievement in Pathology
Lance Harris Bassage II

American Animal Hospital Association Award
Heather Marilla Swatin

Merck Awards
Small Animal Award
Hannah Laura Galantino-Homer

Large Animal Award
Amy Louise Dowd

George M. Palmer Prize
Mark Thomas Donaldson

Everingham Prize for Cardiology
David Whisman Diamond

E.L. Stubs Award in Avian Medicine
Adam Gregory Denish

Large Animal Surgery Prize
Lance Harris Bassage II

Large Animal Medicine Prize
Mark Thomas Donaldson

Marris L. Ziskind Prize in Swine Medicine
Craig Mitchell Smith

Marris L. Ziskind Prize in Public Health
Serena Mei-Sen Liu

Hill’s Award for Nutrition
Evan Andrew Fenberg

Lynne Halleen Mazzone

Phi Zeta Award
Alexandra Chisholm Chat

Purina Mills Award in Swine Medicine
Mary C. McCabe

Upjohn Awards
Small Animal Award
Lance Harris Bassage II

Large Animal Award
Lance Harris Bassage II

Auxiliary to the Student Chapter of the American Veterinary Medical Association Prize
Betsy Claypole Squires

Richard A. Ross Award in Field Service
Christopher Robert Dutton

American College of Veterinary Surgeons Prizes
Small Animal Prize
Michele Stephanie Rundell

Large Animal Prize
Christopher Robert Dutton

American Association of Feline Practitioners Award
Jonathan Morris Rappaport

Senior Awards Previously Announced

Newport Prize in Critical Care
Jonathan Morris Rappaport

Anatomy Prize
Lance Harris Bassage II

Anatomy Prize
Serena Mei-Sen Liu
DENTAL CARE

Care of the horse's mouth requires "floating" or filing to remove sharp edges. This should be started at about six months of age and continue at regular intervals. It may be necessary to remove wolf teeth. All the permanent teeth are erupted at five years of age.

In the dog, the deciduous ("baby") teeth are lost when the puppy is three to six months old. Retention of these teeth is a common problem, seen most often in toy breeds. These should be removed as soon as they are noticed - there should not be two sets of teeth in the mouth at the same time. Tooth brushing is very effective in preventing gum disease. At the same time, any dental irregularities will be noticed. Brushing should be done at least once a week and chewing on dental toys should be encouraged.

Many people have rabbits as house pets. Overgrown teeth can be a problem and are treated by trimming.

Early and regular examination of the mouth can help detect problems before they get out of hand.

WHY CATS SCRATCH

Catnip, a newsletter published by Tufts University School of Veterinary Medicine, has some interesting notes about why cats scratch. They are marking their territory, conditioning their claws (sloughing off the worn outer layer) and exercising their front legs by stretching. Scratching is a natural behavior. Outdoor cats use trees while indoor cats enjoy upholstered furniture and drapes.

Instead of a sofa, scratching posts provide a place to scratch. This must be tall enough to allow the cat to stretch and be firmly attached to a stable base, the floor or a wall. The post should be covered with easily shreddable fabric with vertical fibers. There should be more than one scratching post in a household, including one near the cat's usual resting area.

Training the cat to use the scratching post takes patience and perseverance. It might be helpful to remove the cat from the furniture or the furniture from the cat. Noise makers like marbles in a can, or water pistols or firm voice commands may remind a cat not to use the furniture.

When you leave home, prevent trouble by covering areas that need protection with plastic or tinfoil. Other methods of damage control are nail clipping and nail capping. Declawing is a last resort if behavioral approaches do not work. The usual recommendation is to remove only the front claws so the cat has some defenses and could climb a tree to escape danger.

It is impossible to stop a cat from scratching. Offer alternatives, be patient and persevere.

SHIBA INU

In June, 1993, the Shiba Inu became the 136th breed fully recognized by the American Kennel Club and will compete in the non-sporting group.

The Shiba is considered the smallest and oldest of Japan's dogs. It is believed that the breed accompanied the country's original settlers on their migrations from Southeast Asia. The name has been translated as "Little Brushwood Dog" and Shibus were used as a hunting dog for small game and birds. They have established themselves as the number-one companion dog in Japan. They reached extinction during World War I. The first documented arrival in the United States was in 1954 with an American armed services family. In 1992, the American Kennel Club added the Japan Kennel Club to its primary list of foreign dog registry organizations and Japanese Shibus could be registered with A.K.C.

The Shiba is small, about 15 inches high, active and alert and can adapt to city or country living. The double coat feels somewhat soft and plush and should not be trimmed. The head is "foxy" and the ears are set high and firmly pricked. The colors are red, sesame (red with black hairs) and black and tan with undershading of cream and/or white. The breed standard describes the colors and markings at length.


CRI B BING

Stereotypies are stylized, repetitive, apparently functionless motor responses or sequences. In horses, these include pawing, stall circling, fence pacing, flank biting and cribbing. Cribbing is an oral behavior in which the horse grasps a surface with its incisors and then simultaneously flexes its neck and swallows air (aerophagia). There are some published reports that cribbing is inherited.

Particular methods of cribbing are apparently learned from other horses. Learning to crib may be contingent on genetic predisposition or an environment that causes one horse to crib may elicit cribbing in other horses.

Many treatments are suggested for cribbing. A common method is a strap around the throat that exerts pressure when the horse arches its neck and attempts to swallow. A strap with spikes is more severe. Surgical approaches and pharmacological treatment may or may not help.
**BOOK REVIEW**


This is a book for dog owners who want to know the basics of emergency treatment and how to recognize and handle emergencies until a veterinarian can be reached.

An excellent chapter covers how to recognize emergencies and what to do about them. Subjects covered include anaphylactic shock, birthing problems, bites and stings, burns, bloat, diabetic emergencies, poisoning, urinary tract blockage, vomiting and diarrhea.

A chapter on What to Do First: Basic Life Saving Techniques covers triage which is the art of determining the problems and sorting them according to severity. No breathing and/or no pulse are at the top of the list. Restraining, transporting and cardiopulmonary resuscitation (CPR) are described. Signs of shock are listed - this requires immediate attention.

There is a chapter on wound care and bandaging, including how to make an Elizabethan collar which can keep the dog from removing bandages. First aid supplies for the home are listed. To test your basic knowledge, cases from real life emergencies are presented and the answers on how to handle them are given.

The Appendix gives "rules" on preventing emergencies. Call your veterinarian after you have given first aid. Yearly veterinary examinations may catch problems before they start. Keep your dog on a leash outside the house, unless it is in a fenced area. Keep your garbage secure inside and outside the house. When travelling with your dog, use a carrier or kennel.

Some may say that a little knowledge is a dangerous thing, but this book gives much helpful information that will help the dog owner understand the principles of first aid and what can be done until veterinary help is available.

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**Centennial Medal**

The School of Veterinary Medicine recognized Professor Mikhail Pavlovich Roshchevsky, member and officer of the Russian Academy of Science, director of the Institute of Physiology, and president of the Komi Science Center, for his contributions and leadership in the field of comparative electrocardiology. Dr. David K. Detweiler, Professor Emeritus of Physiology in Animal Biology, presented the School's Centennial Medal to Dr. Roshchevsky during the Third International Symposium on Comparative Electrocardiology, held in Syktyvkar, Komi Republic, Russia in June. Dr Detweiler was the University's delegate to the symposium and guest of the Russian Academy of Science.

Following is the citation for Dr. Roshchevsky:

Distinguished world leader of the field of comparative electrocardiology, skilled investigator, indefatigable scientist, enthusiastic organizer, and prolific expositor; your achievements have inspired students, colleagues and fellow scientists alike.

Your remarkable encyclopedic publications, Electrical Activity of the Heart and Methods of Recording Electrocardiograms from Large Livestock (1958), Evolutionary Electrocardiology (1972), Electrocardiology of Hoofed Animals (1978), integrated your own numerous contributions and the world literature. In these you codified and analyzed our then existing knowledge, especially that of the spread of ventricular excitation from intracardiac (endocardial), intramural and epicardial electrograms, body-surface maps, vectorcardiography and the study of various electrocardiographic lead systems.

These early efforts have been followed by a continuing mastery of the field, further research, additional inquiry and publication.

For your colleagues and fellow investigators a most important and rewarding accomplishment has been the organization of three International Symposia on Comparative Electrocardiology, 1979, 1985, and 1993, held in Syktyvkar, Komi Republic, Russia and subsequent publication of three proceedings of these Symposia.

In recognition of your unique contributions and leadership, The School of Veterinary Medicine at the University of Pennsylvania is honored to present you this ninth day of June, 1993, our Centennial Medal.
Dr. Edward C. Preston, V'37, received the St. George Episcopal Award, a national recognition of distinguished service by adults in spiritual, physical, mental and moral development of young people. Dr. Preston was nominated for this award by the Boy Scouts of America. He has held continuous membership in Boy Scouts since 1928 and has been active in the organization.

Dr. Jill Beech has been promoted to professor of medicine. Dr. Jonathan Palmer, V'77, has been promoted to associate professor of medicine and Dr. Michael Ross has been promoted to associate professor of surgery, clinical educator. Dr. John Wolfe, V'82, has been promoted to associate professor of pathology and Dr. Linda Keller has been promoted to research associate professor of avian medicine and pathology.

Dr. Bruce Madewell, V'70, was awarded the AVMA’s Gaines Award during the AVMA meeting in Minneapolis in July. Dr. Madewell, professor of surgery at the University of California, Davis, School of Veterinary Medicine, was recognized for his broad-based clinical and laboratory studies of naturally occurring cancer in animals.

Dr. Ferdinand C. Visintainer, V'85, a commander in the Naval Reserve, assumed command of Carrier Airborne Early Warning Squadron 78 recently. The squadron flies the E-2C Hawkeye aircraft, an aircraft carrier-based radar-equipped plane. In his civilian career Dr. Visintainer owns a veterinary hospital in Orefield, PA.

Dr. Bruce F. Smith, V'88, completed his Ph.D. in molecular biology, He was a Kleberg Fellow in Medical Genetics in the School’s Section of Medical Genetics. Dr. Smith is now an assistant professor of pathology at the Scott-Ritchey Research Center, Auburn University.

Dr. Meredith L. Snader, V'73, and Dr. Deva Kaur Kalsa, V'81, together with Dr. Sharon L. Willoughby, Dr. Thor John Basko and Craig Denega are co-authors of Healing Your Horse, a book on alternative therapies published by Howell Book House, MacMillan Publishing Company.

Dr. Sherbyn W. Ostrich, V'63, announced his candidacy for president-elect of the AVMA at the association’s meeting in Minneapolis in July.

Dr. Howard C. Hughes, V'67, received the 1993 Charles River Prize at the AVMA meeting. Dr. Hughes was honored for his contributions to the field of laboratory animal medicine.

Three faculty members presented lectures at the 11th Annual Meeting of the PVMA in October: Dr. Alan Kilde, V'65, associate professor of anesthesia; Dr. James Orsini, associate professor of surgery; and Dr. Robert Washabau, V'82, assistant professor of medicine.

Dr. Steven Kuhlman, V'85, has been certified a Diplomate of the American College of Laboratory Animal Medicine. Dr. Kuhlman is attending veterinarian at the Monsanto Company, St. Louis, MO.

Dr. Colin Harvey, professor of surgery and dentistry, Dr. Paul Orsini, staff dentist, Dr. Eva Sarkiala, dental resident, Dr. Jamie Anderson, and Ms. Bonnie Flax, staff dental hygienist, all presented papers and wet labs at the American Veterinary Dental College-Academy of Veterinary Dentistry 7th Veterinary Dental Forum in Auburn, AL.

Ms. Flax recently attended the American Dental Hygienist Association meeting and has been nominated as the ADHA liaison to veterinary dental groups.

Dr. Harvey and Dr. Sarkiala presented papers at the second European Veterinary Dental Society meeting in Berlin. Dr. Harvey also presented two papers at the World Small Animal Veterinary Congress in Berlin. In June, Dr. Harvey participated with Dr. Peter Emily in a week-long dental course at Sydney University, and was the external examiner for the first Australian College of Veterinary Scientists membership examination for the specialty of veterinary dentistry. In September, he presented papers at the University of Sao Paulo and the annual meeting of Brazilian Small Animal Practitioners. In January he presented a seminar in Osaka, Japan.

Dr. Larry L. Laster, associate professor of epidemiology has been appointed chief of the section of epidemiology at VHUP and Dr. Gary Smith, associate professor of population biology and epidemiology, has been appointed chief of the section of epidemiology at New Bolton Center. Dr. Benson Martin, V'80, assistant professor of equine sports medicine, has been appointed chief of the section of equine sports medicine. Dr. Sandra Perkowski, V'88, lecturer in anesthesia, has been named acting chief of the section of anesthesia (VHUP).

Dr. Donald A. Abt, V'61, Robert R. Marshak Term Professor of Aquatic
Animal Medicine and Pathology, has been appointed a member of the Advisory Panel of the Office of Technology Assessment assessment of Aquaculture: Food and Renewable Resources from U.S. Waters. The study is being undertaken at the request of the House Committee on Merchant Marine and Fisheries, and the House Committee on Agriculture and its Subcommittee on Livestock. Dr. Abt was recently elected to serve on the council of the Marine Biological Laboratory Corporation.

Dr. Roselyn J. Eisenberg, professor of microbiology, was an invited speaker at the 18th Annual International Herpes Meeting in Pittsburgh in July.

Dr. Peter J. Hand, V'61, professor of anatomy, presented an invited talk entitled “Peripheral and Central Activity-Produced Functional Plasticity in the Adult Rat Barrel Cortex” at a symposium on Plasticity in the Somatosensory system which was part of the 32nd International Congress of Physiological Sciences held in Glasgow, Scotland in August.

Dr. Virginia Pierce, V'87, vice president for research/Zoo pathologist at the Zoological Society of Philadelphia, will guide a 16-day safari tour to Kenya and Tanzania in February.

Dr. Mark M. Smith, V'82, received the 1993 Beecham Award for Research Excellence. He also recently co-authored a textbook entitled Atlas of Approaches for General Surgery of the Dog and Cat. Dr. Smith is an associate professor at the Virginia-Maryland Regional College of Veterinary Medicine.

Dr. David L. Diefenderfer, V'81, is the recipient of an NIH Physician Scientist Award from the National Institutes of Arthritis, Musculoskeletal, and Skin Diseases. This five-year award supports studies investigating the role of the pericyte as an osteogenic precursor cell. The work will be performed in collaboration with Carl T. Brighton, M.D., Ph.D., director of research of the McKay Laboratories for Orthopaedic Research at the Hospital of the University of Pennsylvania and Paula Henthorn, Ph.D., assistant professor of medical genetics in the Department of Clinical Studies-Philadelphia.

Dr. Benjamin Wolfe, professor of microbiology, received a United States Patent for a new immunoassay for the detection of viruses and proteins.

Dr. Charles Ziegler, V'34, was honored by the Maryland Veterinary Medical Association and received THE GOOD DOCTOR Award from the organization.

The Pennsylvania Veterinary Medical Association presented the Dr. A. Wayne Mountan Memorial Media Award to Dr. Brian McDonough of Ch. 29 for his three part series on the School.

Dr. Wilfried T. Weber, professor of pathology, recently completed a six-year term of appointment to the Veterinary Immunology Committee (VIC) of the American Association of Immunologists (AAI), chairing the committee for the past two years. VIC is one of the standing committees of the AAI, an organization of more than 4,500 members. The VIC is responsible to the AAI for all issues relating to experimental and domestic animals, and for coordinating activities with other organizations whose goals relate to veterinary immunology. One of the primary purposes of the committee is to foster interaction among immunologists interested in a variety of domestic animal species and between that diverse group and those working in human and rodent immunology.

Dr. Ilene D. Arnold, V'89, has been appointed as a veterinary medical officer in Greene, ME, by the Food Safety and Inspection Services of the USDA.

Katherine B. Chope, V'96, and her horse Hearsay won the $5,000 The Oaks/Show Jumping Hall of Fame Amateur-Owner Jumper Classic at the Devon Horse Show in May. This win gave Chope the lead in the Show Jumping Hall of Fame national standings.

Patricia Khuly, V'95, served as an AVMA student extern in the AVMA’s Washington office. Student externs attend congressional and federal agency hearings, help research legislative and regulatory issues, meet with congressional staff, representatives, and senators and become familiar with the federal legislative process.

Dr. Leslie Dierauf, V'74, serves as a temporary staff member of the AVMA Washington office. She also works for the Association of American Veterinary Medical Colleges. analyzing the feasibility for increased federal funding to academic veterinary medicine.

Dr. Leon Z. Saunders, who for many years served as adjunct professor of pathology, was awarded an honorary Doctor of Science degree by the University of Gueph.

A NIH grant for the project “Human Strongyloidiasis: Development of an Animal Model” was renewed for another five years. Dr. Gerhard Schad, professor of parasitology, is the principal investigator, and Dr. Gary Smith, associate professor of population biology and epidemiology, is one of the co-investigators.

AVMA Honor Roll

The House of Delegates of the AVMA granted honor roll status to the following graduates at the Annual Meeting in Minneapolis in July:

Marvin Alexander, V'46
Roy D. Bertolet, V'46
Elwood H. Borger, V'46
Edward A. Carbery, V'45
Peter R. Cebulka, V'51
Kenneth J. Feldman, V'49
Camille A. Gardner, V'51
Robert C. Hammond, V'48
Carlton R. Hower, V'51
Joseph J. Kline, V'48
Morton B. Krehmer, V'44
Eugene A. Martin, V'51
Victor A. Menghetti, V'45
Harold C. Neibert, V'51
Russell A. Nelson, V'47
Arthur H. Peck, V'50
Clarence M. Stone Jr., V'50
E. Jack Straley, V'45
Two Dean's Scholarships Established

The School is pleased to announce the creation of two new Dean's Scholarships in memory of W. Edward McGough and John Baxter Taylor. With these scholarships, the School now has 28 endowed Dean's Scholarships.

W. Edward McGough, an eminent psychiatrist and respected member of the Dog Fancy, was a member of the School's Board of Overseers for many years. The impetus for establishing the scholarships came from Dr. McGough's close friends and colleagues, many of whom made gifts to memorialize his strong commitment to the education of young people and the special place he occupied in their lives.

The second scholarship is named for John Baxter Taylor, the second African-American graduate of Penn's Veterinary School and the first African-American to win an Olympic gold medal. He participated in the 1908 Olympic Games shortly after graduation from Veterinary School; his veterinary career was cut short when he died later that year from typhoid pneumonia. The John Baxter Taylor Dean's Scholarship is the second Dean's Scholarship designated for a minority student; the first was created by Alonzo Edmison, Jr., V’67.

We thank the following donors for their gifts for the W. Edward McGough and John Baxter Taylor Dean's Scholarships.

W. Edward McGough Dean's Scholarship
Paula and Edwin J. Andrews, V’67
Louis Auslander
Giuseppe Benelli (deceased)
Eugenia Bishop
Robert R. Caldwell
Helen B. Jones
Cardigan Welsh Corgi Club of America
K. Carol Carlson
Frances B. Deiss
M. Josephine Deubler, V’38
Samuel E. Ewing III
Friends of Donald J. Massaker
Steven D. Gladstone
Walter F. Goodman
in memory of James E. Clark and Elsie (Mrs. Stewart) Simmons
Lysbeth B. Higgins
Dona Hausman

John Baxter Taylor Dean's Scholarship
Felicia S. Blue
Robert L. Gardner
Robert Shorner, V’34
Amos Stults, V’35
Terry Funeral Home
Thompson Terry
Robert Ticchurst, V’34
William H. Waddell, V’35
George H. Wilson, Jr.
Charles Ziegler, V’34

Uncle Sam can outwait, and maybe, outwit you

Did you know that:
• With the new tax law changes, 55% is the new estate tax rate?
• By "giving something back" to your alma mater, you can often leave a larger estate for your heirs?
• One of the best ways to minimize and possibly avoid the estate tax, and perhaps increase your annual income and decrease your federal income tax, is through a planned gift to benefit the Veterinary School?

If you put off planning your estate, you're inviting the government to arrange your financial affairs for you, possibly subjecting your heirs to a needlessly high tax bill. Time spent today in constructing a tax-wise estate can result in more money for your children.

The Estate Tax on "illiquid" assets - particularly real estate - can drain cash that your heirs would otherwise inherit. Veterinarians and our friends with animals tend to own significant real estate assets.

The benefits of transferring real estate before it's caught by the Estate Tax. You could give your house, farm, or professional office to the Veterinary School, either outright or in return for lifetime income from Penn (that option also reduces the capital gains tax). A variety of life-income arrangements can also be created using other appreciated assets, such as low-yielding securities. With these gifts, you can improve the financial position of your estate, while making a significant impact on the future of veterinary teaching, research, and service at Penn.

If this opportunity sounds interesting, call the Veterinary Development Office at 215-898-4234, or Penn's Planned Giving Office at 215-898-6171.
Special Gifts

The following made a donation to the Friends of New Bolton Center in memory of Miss Carol Goodwin: Mr. and Mrs. Lawrence Barrett, H. Terry Goodwin, The Eisenberg Family, Philadelphia Dog Training Club, Inc., The Poppei Family, Ms. Karen Reynolds, Mr. and Mrs. Carl Siebecker, Jr., Mr. and Mrs. Robert Stafford.

The following are gifts to the Friends of New Bolton Center in memory or honor of the person listed:

- A gift in memory of Mr. and Mrs. Dean Bedford by Mr. and Mrs. John H. Livingston;
- A gift in honor of Dr. Eric Tulleners by Dr. Ruth Ann Fitzpatrick;

Following are gifts to the Friends of New Bolton Center in memory of special animals:

- A gift in memory of RUFIN by Ms. Elizabeth W. Glascock;
- A gift in memory of HAGAR by Dr. and Mrs. Stephen M. Hanson;
- A gift in honor of J. L. by Mr. and Mrs. Emanuel Greenwald;
- A gift in memory of SPRINGTOWN EDWARD by Dr. John W. Lee, Jr.;
- A gift in memory of ZORRO by Dr. and Mrs. Mark B. Guise;
- A gift in memory of WOODSTOCK by Mrs. Barbara Bauer;
- A gift in memory of PIPER by Ms. Danielle B. Braga.

Early Support = Continued Support

Young Alumni will be hearing about the new 5 for 25 campaign over the next few months. Pacesetters, young alumni who have graduated within the last five years, will be asked to contribute five dollars for each year since graduation. All monies raised from this campaign will be placed into an interest-bearing endowment fund and used as the foundation for each class’ 25th reunion gift.

Dr. Norbert McManus, V'47, long standing class agent and originator of the idea for the 5 for 25 campaign, feels so strongly about it that he has agreed to provide $100 in seed money for each Pacesetter class. Dr. McManus believes that early Alumni Annual Giving is an indicator and important factor of continued support.

Scholarships

Joshua H. Clay, V'95, received a scholarship from the Clark Foundation.

Lisa Van der Gaag, V'94, received the Clifford F. Wright, Jr. Scholarship. Five Dr. J.E. Salsbury Scholarships were awarded to the following members of the Class of 1994: Victoria Hoffman, Arthur Jankowski, Brenda Kaufman, Judith Surdam, and Svea Wahlstrom.

Debra Buchanan, V'95, received a scholarship from the Trushel Scholarship Trust. Kathryn M. Sneider, V'95, and Patricia M. Khuly, V'95, received educational grants from the American Kennel Club. Ms. Sneider also received a scholarship from the Lancaster Kennel Club, Inc.

An Anne White Dean’s Scholarship was awarded to Linda Womer, V'94. Susan Nickolaus, V'94, received the J. Maxwell Moran, Sr. Dean’s Scholarship. Victoria Hoffman, V'94, and Steven Suter, V'95, are the recipients of Mrs. Jack L. Billhard Dean’s Scholarships. The Dr. M. Josephine Deubler Dean’s Scholarship was awarded to Ms. Kathleen Hall, V'95. June Hacker, V'95, received the Ethel H. Mitchell Dean’s Scholarship. The Bruce J. Heim Dean’s Scholarship was given to Gillian Gibson, V'94. Ruth Shedwick, V'96, received the Hill’s Dean’s Scholarship.

Lisa Saravis, V'94, is the recipient of the Westminster Kennel Foundation Scholarship. Emily Elliot, V'97, received a scholarship from the Northwestern Connecticut Dog Club. Deborah Mara, V'95, and Camille De Clementi, V'94, received scholarships from the New Jersey Veterinary Education Foundation.

Class of 1997

The Class of 1997 arrived on campus on August 25 for three days of orientation. This is a diverse class of 96 women and 34 men. The youngest is 20 and the oldest is 47. About ten students are in the 35-42 age group. The largest number of the students is from Pennsylvania, followed by students from New Jersey, New York, California, Maryland, Delaware, Connecticut and Massachusetts. The other states represented with one student each are Rhode Island, Maine, Colorado, Georgia, Hawaii, Ohio, and Virginia. There are some students of foreign origin, two Israelis, one Finn, one from India, one Canadian, and one from Great Britain.

There are 53 biology majors and 27 animal science/bioscience/zooloogy/pre-veterinary majors. These are followed by the chemistry (6) and biochemistry (2) majors. The other majors run the gamut from English/French/Italian to applied mathematics, East Asian studies and economics.

There are two lawyers in the class and a nurse/midwife. Other graduate areas of specialization include aerospace engineering, systems engineering, home economics/nutrition, pharmacology, biochemistry, microbiology, marine studies, physiology, environmental science and laboratory animal science.
The 1993 Alumni Day was an enormous success.

Over 150 Alumni, friends and family were in attendance at the 1993 Alumni Day Annual meeting at the New Bolton Campus to witness the installation of Dr. George L. Hartenstein IV, president of the VMAS Board. Five Alumni Award of Merit recipients received recognition for outstanding excellence in the field of veterinary medicine and new board members were introduced.

Proceedings moved outdoors where a delicious barbecue luncheon was served. Alumni and their families enjoyed tours and carriage rides through the campus and a face painting clown for the children.

Join us again on May 14, 1994 for another day of fun and activity at New Bolton Center on Alumni Day.
Award of Merit Recipients

The Veterinary Medical Alumni Society of the University of Pennsylvania presented the Award of Merit to five graduates on Alumni Day on May 15, 1993.

Honored were Dr. Gustavo Aguirre, professor of ophthalmology and director of the Baker Institute at Cornell University's New York State College of Veterinary Medicine, Dr. Gregory Bossart, chief veterinarian and pathologist at the Miami Seaquarium, Dr. Katherine A. Houpt, professor of physiology, New York State College of Veterinary Medicine, Cornell University, Dr. Alfred Kissileff, a retired veterinarian from Flourtown, PA., and Dr. Julius P. Kreier, professor emeritus in microbiology, Ohio State University.

Dr. Aguirre, a member of the Veterinary School's Class of 1968, was honored for his prodigious scholarly achievements in the fields of comparative ophthalmology, retinal cell biology, and retinal pathology.

Dr. Bossart, a member of the Veterinary School's Class of 1978, was honored for his contributions to wildlife medicine and comparative pathology as a teacher, researcher, and practicing veterinarian, and for his willingness to share his expertise with other wildlife organizations, ranging from the Dolphin Research Center to the Guyana Zoologic Park. He was an invited member of the United Nations Oil Response Team, UNESCO workshop on the rehabilitation of oil affected wildlife following the Persian Gulf war in Bahrain/Saudi Arabia.

Dr. Houpt was honored for her tireless efforts to promote understanding of animal behavior among veterinarians and the public. Dr. Houpt, a graduate of Penn's Veterinary School Class of 1963, is the director of Cornell's Animal Behavior Clinic and the first woman to be appointed to a full professorship at Cornell's College of Veterinary Medicine.

Dr. Kissileff was honored for his long and varied professional career encompassing private practice, public service, the U.S. Army, and business. A member of the Veterinary School's Class of 1933, Dr. Kissileff discovered that fleas are the etiologic agent of summer eczema. He also did much of the early work on artificial insemination of cattle, and designed an instructional aid to enhance food inspection. Dr. Kissileff died on September 30, 1993.

Dr. Kreier was honored for his outstanding academic career marked by dedicated teaching and exemplary research, notably in the area of host-parasite interactions, and for his strong commitment to the training of young scientists. A graduate of Penn's Veterinary School Class of 1953, Dr. Kreier has published extensively and lectured widely in this country and abroad.
FC and AFC Doubledee Dancer

A dream came true when my lovely and courageous Gordon setter, Doubledee Dancer, became the first of my Cordons to win both AKC field titles. Already an Amateur Field Champion, Dancer completed this feat at the Gordon Setter Club of America Field Mason-Dixon Field Trial December 5, 1992 in Petersburg, Delaware, besting a field of 15 in the Gordon Setter Only Open Gun Dog Stake. This was such an emotional win for me since Dancer won her title after all the odds seemed stacked against her.

In the summer of 1990 Dancer developed laryngeal paralysis and became quite ill. Surgery was performed by Dr. David Holt at the Veterinary Hospital of the University of Pennsylvania (VHUP). Dancer recovered and went on to win her Amateur Field Championship in October, 1991. Early in 1991 she developed a megaeosophagus which led to aspiration pneumonia. Dancer was hospitalized at VHUP and was under the care of Dr. Robert Washabau. The cause of the megaeosophagus was unknown and at the time it was uncertain whether or not it would resolve. Dancer recovered from the pneumonia and came home. The veterinarians recommended that a humidifier be installed in the kennel and that she be fed from a height to help the passage of food through the non-functional esophagus. We followed these instructions and Dancer slowly recovered.

Dancer was always spunky from the time she was a puppy, holding her own against her two much larger brothers. If any dog could make it back, I knew she could. She was always a joy for me to run. She loved it, hunting everywhere and checking out every likely objective, always with speed and incredible animation. Her wins as a younger dog included the GSCA Derby of the Year Award in 1987 and the GSCA Gun Dog Award in 1989. Before her 1990 surgery she had placed in 15 Gun Dog Stakes, including three firsts. She also had the honor of winning the Page's Rotating Amateur Gun Dog Trophy.

Even after hearing the guarded prognosis from the Penn veterinarians, I always kept hoping that some day she might run again so I could enjoy her special talents while restoring to her the opportunity to once again soar across the fields in search of birds. Dr. Guiliani, my regular veterinarian, even pointed his finger at me saying, "She will run again."

In the summer of 1992 I started roadworking her from my horse since she cannot run and hunt during the pollen season because during the surgery to correct the laryngeal paralysis her protective vocal folds were resected, removing one of the defenses protecting against aspiration.

I roadworked her at first several times a week increasing this to every other day for a half hour as she built up condition. By early November, with most of the pollen gone, I started running her in the field, working on bird work, back and fine points. She looked so happy, running and hunting, rejuvenated and young again.

She was now ready and I entered her in the Open Gun Dog Stake in December at the Delaware trial. She ran a wonderful animated race with two solid finds, hardly showing any strain, going on to win the stake and complete her field championship.

Dancer also accomplished another feat that I had thought unattainable, whelping a litter of eight wonderful, healthy and lively puppies. On May 7th, 1992 I woke up in the morning to find Dancer in her crate where she had spent the night with three puppies already born. She had not given me any signs the night before of being ready to whelp. She quickly went into the whelping box and had the balance of the litter in several hours for the easiest delivery I have seen. She was the most wonderful mother I could hope for. One of the three pups that I kept, Doubledee Dakota, has won every Open Puppy Stake in which he has been entered. It is such a special thrill for me to see Dancer and her pups competing in field trials and winning!

Doubledee Dancer is a great granddaughter of my beloved Doubledee Highland Dare and granddaughter of my veteran 13-year-old campaigner, Doubledee Heatherfield Dash. Needless to say, I am extremely proud of my courageous and special FC and AFC Gordon setter, and grateful that the veterinarians could restore her health, as she looks at me with that twinkle and love in her eyes, saying to me, "Thanks."

Gwynne McDevitt
**Unusual career**

Dr. Jessica Dimuzio applies differential diagnosis every day, not when dealing with animal patients but when counseling fellow veterinarians. Dr. Dimuzio is a career and personnel management consultant who specializes in veterinary medicine. Her client base is national and many consultations are done by phone.

She has first-hand experience with the diversity of the profession. Circumstances forced her to change career paths several times since graduating from Penn in 1978. "I started in a small animal practice with an emphasis on exotics," she said. "A back injury put an end to that and I became director of the veterinary technician program at Harcum Junior College. Then my husband and I had the opportunity to return to Kenya to work in wildlife conservation. After our return from Africa, I worked in sales and marketing for a major pet food company for a few years, calling on veterinarians."

While calling on practitioners, Dr. Dimuzio became aware that some were dissatisfied with private practice. "Each year about 1,500 veterinarians explore changing positions or leaving the field. Some drop out because they are burned out, some are discouraged and some just want to do something different. Many do not know which career direction to take or what position will allow a good match between their skills and personality and the job tasks. They often are not aware of the opportunities available in private practice, industry, government, or academic institutions. And traditional career counseling services have little familiarity with the veterinary profession and can offer only limited guidance in this unique medical field."

"I had long been interested in counseling and became certified in the Myers Briggs Type Indicator, a psychometrics instrument that is used to determine a person's preferences for acquiring information, making decisions, and responding to structure. The instrument, actually a lengthy questionnaire, is just one of the tools that lets Dr. DiMuzio discover her client's natural interests, skills, and special talents. She then utilizes her veterinary training and her diverse experience in the field to point out a new and better career path for the client."

Sometimes this may involve a closer look at practice - either learning personnel management of perhaps a reorganization of responsibilities. In other cases, it may lead the client to change specialties within the field. "Many veterinarians prefer introversion, living in a world of ideas, and are not all that happy dealing with other people," Dr. Dimuzio said. "This can result in dissatisfaction with work. By knowing the field and knowing the client's skills and interests, I can realistically appraise the current career situation and offer recommendations. This may mean teaching communication and team building techniques, either individually or for the practice. In other situations, it may be to help the client establish attainable long term career goals, including how to market his/her skills and talents."

Dr. Dimuzio has not confined her work to individual practitioners. She is lecturing extensively before professional associations and has organized student and faculty workshops at veterinary schools here and in Canada on career options, integration of teaching and learning styles, problem-based learning, and communication and team building.

Her current project is the development of manual on how to select a veterinary specialty. "I want to provide specific information so an individual can match skills and interests with a specialty," she said. "Right now a person may just guess whether a particular specialty is right for him/her."

Dr. Dimuzio has put her veterinary training to good use, though not in the traditional manner. She is a prime example of the diverse career paths veterinary training prepares for.

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**Veterinary Dental News**

Dr. Colin Harvey, professor of surgery and dentistry, is developing a Penn-based Canine-Feline Periodontal Fund as an umbrella organization for research, continuing education and product evaluation in the general area of companion animal periodontal disease. These activities are coordinated with the Center for Veterinary Medicine of the US-FDA, and with input from a broad-based consultant panel. One possible direction for activities is the establishment of a review and recognition system for products designed to prevent or treat periodontal disease.

The intensive hands-on veterinary dental continuing education programs presented by Dr. Peter Emily and Dr. Harvey at the Penn Dental School have been continued for 1993-94, Periodontics and Oral Surgery on December 3-5, 1993; Endodontics and Conservative Restorations on February 4-6, 1994; and Feline Dentistry on March 25-27, 1994. Details available from the Office of Continuing Education, 215-898-3525.