

Newsmagazine of the School of Veterinary Medicine

Bellwether

University of Pennsylvania

Fall 1992

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From the Dean:



Dear Friends,

By now the news of our financial situation has reached nearly every constituent of the School and many individuals who did not know of us before.

Indeed, who would have expected that an institution with a proud record of 108 years of education, research and service could be threatened by a draconian cut in its funding? Yet, it happened. And, despite all of our efforts, the Pennsylvania legislature passed a stop-gap budget which fails to provide any funds for private institutions of higher education.

The agricultural community and our many constituents and friend have risen to the call and forged a coalition to assist us by convincing the State to restore our funding. We are comforted by a \$16.5 million deficit budget approved by the University Trustees, and are confident that all that we represent to the state, profession, nation, and indeed the world, will be recognized and appropriately supported.

The issue of stable funding over the last several years has sharply focused the vulnerability which we face in maintaining the quality of our institution, and the breadth of our programs and services. As I stated in the Spring Bellwether; "those educational institutions with a clear purpose and sustained funding will be the leaders in the next century."

With the support of you, our constituents, and friends and with recognition of our importance by the State we will succeed in being one of those leaders.

New Overseers Appointed

Mrs. Elsie Sterling Howard, Mr. Edward Kane, Dr. Laurie Landeau, and Mr. Robert P. Levy have been appointed to the School's Board of Overseers.

Mrs. Howard (C'68) is a director of the National Foundation of Ileitis and Colitis and the Comprehensive Cancer Foundation. She also serves as vice president of the Project Newborn of the Neonatal Care Facility and chairman of the Second Generation of the Maine Heart Institute. In addition, Mrs. Howard is a member of the Safety Committee of the City of Miami Beach, the Chamber of Commerce of Miami Beach, and the board of the Jewish Federation of Miami Beach. She currently serves on the Trustees' Council of Penn Women and the President's Council. Mrs. Howard serves as an alumni trustee and serves on the Trustees' Student Life Committee.

Mr. Kane (C'71) serves as managing general partner of Hancock Venture Partners. Mr. Kane joined John Hancock Mutual Life Insurance

in 1979 and co-founded Hancock Venture Partners in 1982. He previously served in the commercial banking division of the Bank of New England for four years.

Dr. Landeau (V'84, W'84) is the first alumnae to serve on the Board of Overseers. Dr. Landeau is president of Marinetics, Inc., an environmental research center. She is also assistant director of Penn's Program in Aquatic Veterinary Medicine. In 1986, Dr. Landeau co-authored a section on exotic animals in the Small Animal Hospital Formulary.

Mr. Levy (C'52) is chairman and president of DRT Industries, Inc., chairman of the Atlantic City Racing Association, and a partner with his wife, Rochelle, of the Philadelphia Phillies Baseball Team. He is a director of the Philadelphia Chamber of Commerce and president and director of the Thoroughbred Racing Association. Mr. Levy is a recipient of the John B. Kelly Athletic Award from the John B. Kelly Foundation, the Service to Youth Award from the

Pennsylvania Sports Hall of Fame, the Alumni Award of Merit from the Penn Charter Alumni Society, the Distinguished American Award from the Philadelphia Chapter of the National Football Foundation and Hall of Fame, and the 1987 Police Athletic Award. He served on the President's Commission on Olympic sports from 1974-76 and was appointed to the President's Council on Physical Fitness and Sports in 1985. Mr. Levy and his family made possible the creation of Blanche P. Levy Park in the center of campus, the Levy Tennis Pavilion, and the Dental School's Levy Research Building and the Paley Professorship for the dean of the Graduate School of Fine Arts. A trustee for many years and a member and past chairman of the Board of Overseers of the School of Dental Medicine, he served on the Trustees' Development, Facilities and Campus Planning and Student Life Committees as well as the Investment Board and the Athletic Advisory Board.

New Bolton Center Day at the Races

The sun came out on this year's New Bolton Center Day at the Races in Saratoga raising the spirits and good cheer of more than 100 gathered friends. Horses honored on this festive occasion included:

DOUBLE FLORIN

by Laurie J. Landeau, V. M. D.

GAI MINOIS

by Mrs. Wylie F. L. Tuttle

HEIGHT OF FASHION

by H.H. Shaikh Hamdan bin
Rashid al Maktoum

I'M SWEETS

by Brushwood Stable

LORD SUTLER

by Mr. & Mrs. Vincent B.
Murphy, Jr.

MR. FRISK

by Mrs. Harry J. Duffey

TOPICOUNT

by Mr. & Mrs. Judson L. Streicher

VICTORIAN HILL

by Mr. & Mrs. William C. Lickle

At a between race auction, Mrs. Philip B. Hofmann purchased "The Equine Comedy" a painting by Peb donated especially for the event. Proceeds of the benefit will support Dr. Jill Beech's studies on the underlying causes of "tying up" and provide nuclear medicine diagnostics at the Center.



Mrs. J. Maxwell Moran, chairman of the event, joins former Dean, Dr. Mark W. Allam, and Board of Overseers member, Mr. Vincent B. Murphy, Jr. with his wife, Patricia, and daughter, Karen, AT THE RAIL in Saratoga.



Dean Edwin J. Andrews shares a moment with the high bidder of Peb's "Equine Comedy", Mrs. Philip B. Hofmann.



Mrs. Jane Lunger, who attended the Day at the Races at Saratoga, generously hosted a party last Spring as a show of support for New Bolton Center. It was most gratifying to have so many friends join the pleasant occasion which was held at the Vicmead Country Club near Wilmington, Delaware.



One of the special guests attending the party, Ms. Mary Tyler Moore, confers about the next race with Dr. Dean Richardson, assistant professor of surgery at New Bolton Center.

Salmonella enteritidis Pilot Project

Salmonella enteritidis has long been a vexing problem for the food industry as these bacteria multiply at a great rate in improperly stored foods or on improperly cleaned utensils or surfaces. One infected egg, for example, in a batch of scrambled eggs left on a steamtable for a few hours, can contaminate the entire dish. In most people, *S. enteritidis* can cause stomach and intestinal upsets, though the illness can be very serious in young children and the elderly; in rare instances it results in death.

The *S. enteritidis* organism can be found in the intestinal tract of humans, domestic and wild animals, especially rodents, and presents a problem to the poultry industry because it is found in eggs.

The Pennsylvania poultry industry, with funding from the USDA and the Pennsylvania Department of Agriculture, has mounted a pilot program to reduce the number of *S. enteritidis* infected eggs that reach the market. This voluntary program encompasses not only the testing of eggs but also testing of pullets, layers, their environment, and a study of the rodent population in chicken houses, as well as a review of rodent control measures.

Testing is conducted by four laboratories, the Cooperative Poultry Diagnostic Laboratory at the University of Pennsylvania, the Cooperative Poultry Diagnostic Laboratory at Penn State University, the Summerdale State-Federal Cooperative Laboratory at Summerdale, PA, and the National Veterinary Services Laboratory at Ames, IA.

Testing of eggs began in mid-July and so far 92,000 eggs from 51 houses have been tested. Eggs from seven flocks have been found to be contaminated with *S. enteritidis*. "We test eggs only if layers, trapped rodents, or the chicken house have tested positive for *S. enteritidis*," explained Dr. Robert Eckroade, associate professor of pathology at Penn's New Bolton Center and director of the Cooperative Poultry Diagnostic Laboratory at the School. "Though a positive reading of

any of these factors does not mean that the eggs are contaminated."

When eggs are tested, the farmer submits 1,000 eggs every other week for four tests. These eggs are broken and put in batches of 100 that are held at room temperature for two days. Then samples from these batches are cultured on agar plates for another two days. If *S. enteritidis* grows, that sample is sent to the National Veterinary Services Laboratory at Ames, IA for serotyping of the isolate. The test takes about two weeks from start to finish. If any of the eggs are found to be positive for *S. enteritidis* then all the eggs from that flock have to go to the breaker market; they are pasteurized to kill any bacteria. If the samples test negative four consecutive times, the eggs produced in that particular house are sold as graded whole shell eggs.

It is very difficult to eradicate *S. enteritidis* from the environment. "Mice and chickens go together," said Dr. Eckroade. "If a house is depopulated and then cleaned, the mice move out. But the moment chickens and feed are put back in, the mice return. They live in the walls and in the surrounding fields." Farmers try to control these pests through rodenticides, traps, and by keeping the area around the chicken house free of tall vegetation. But it is an ongoing battle. "I know of one farm that has used half a ton of rodenticide, and that did not eliminate all mice, but it did control them somewhat," Dr. Eckroade said. He explained that the mice do not appear to be sick even though they are carrying the *S. enteritidis* organism. "Chickens with *S. enteritidis* infection also rarely are sick, though the strain in Europe (phage type 4) is much more pathogenic than the strain seen here. There it often kills chickens."

Researchers at the three laboratories will be studying *S. enteritidis* in mice with particular emphasis on the infectious cycle. It has been discovered that the *S. enteritidis* strain is often identical in mice, chickens, eggs, and the environment in a given location.

Other factors being examined are

farm biosecurity measures, cleaning and disinfection methods, and vaccination of chickens against *S. enteritidis*. Dr. Sherrill Davison, assistant professor of avian medicine and pathology, looked at the efficacy of disinfectants when mixed with water from various sources. Some farms use well water while others may use water from streams. Frequently there are other organisms or minerals present that may interfere with the action of the disinfectant. The study is still in progress, but Dr. Davison has found that chlorine is usually not an effective disinfectant for chicken houses.

She also is conducting vaccine studies in 12 flocks to determine whether the occurrence of *S. enteritidis* in eggs could be prevented by vaccination.

The *Salmonella enteritidis* pilot project study will take about two years and ultimately will involve 200 chicken houses. The researchers hope that their findings will lead to the development of a more effective *S. enteritidis* control protocol.



New, faster *Salmonella enteritidis* Test

The current tests used to identify *Salmonella enteritidis* take almost two weeks. Dr. Linda Keller, research associate professor at Penn's Veterinary School, has developed an ELISA (enzyme-linked immunosorbent assay) that can determine in just under 30 hours whether *Salmonella enteritidis* is present in a sample. "This test is based on a very specific monoclonal antibody to *Salmonella enteritidis*,"

said Dr. Keller. "We incubate the eggs for 24 hours at 37 C°. Then we take a sample of the material and "sandwich" it between the monoclonal antibodies. We can get a reading of the sample in about three hours."

Because of the large number of eggs being cultured at the Cooperative Poultry Diagnostic Laboratory at New Bolton Center, Dr. Keller has been able to compare

the results of the ELISA test to those from the conventional test and verify the accuracy of the new test. "It's been very exciting and may be a commercial kit can be developed."

When a reading is negative in a suspect house, eggs can be diverted back faster to the grade market. This helps the farmer. And on the other side, if the results are positive, control measures can be instituted much quicker."

Herpes Virus as a Vector to Deliver Healthy Genes to Brain

Herpes virus, after an acute short infection, becomes latent in the nerve cells. This latency factor plays a key role in research by Dr. John Wolfe, assistant professor of pathology and medical genetics at the School, and Dr. Nigel Fraser of the Wistar Institute. Dr. Wolfe, a specialist in gene therapy, and Dr. Fraser, an expert on herpes virus, have collaborated to construct a herpes virus vector to deliver a healthy gene to central nervous system cells of mice afflicted with mucopolysaccharidosis (MPS) VII (Sly disease).

"The herpes virus is uniquely able to transfer genetic material to a brain cell without killing it because it is a latent virus," notes Dr. Fraser. "The advantage of the herpes virus is that it can transfer the gene directly to the target organ, without removing cells from the body and then reimplanting them," says Dr. Wolfe. "The healthy gene remains active in the brain cells, which is important for achieving permanent correction of the deficiency."

The researchers modified a herpes simplex virus (HSV-1) and inserted a normal gene for enzyme production near the location of the virus' latency gene to take advantage of that gene's ability to activate the normal gene. The reconstructed virus was injected into a group of mice with MPS VII and it was found that a small number of central nervous system cells then produced the proper enzyme over a prolonged period of time.

This is the first time that a genetic deficiency in diseased cells of the brain has been corrected by gene therapy. Drs. Wolfe and Fraser caution that further development is needed to correct enough cells to improve the disease in patients. It has been shown, in previous studies, that vector-transferred enzyme activity in MPS VII can result in correction of the metabolic defect. Thus the expression of vector-transferred gene in the central nervous system should correct the metabolic deficiency.

Sly disease, an inherited lysosomal storage disease, causes mental retardation and affects the liver, skeletal system, heart, eye and brain. It is a rare, but devastating fatal disease of humans, and has been identified in dogs and mice. It is estimated that 1 in 25,000 human births will result in some form of MPS. The disease is caused by a genetic deficiency where cells are unable to produce an enzyme needed to break down complex sugar molecules.

The molecules accumulate in the cells, interfering with normal function.

Dr. Wolfe points out, that at this time, the number of cells showing activity of the corrected gene is small. However, as knowledge increases, the herpes virus vector could become an important vehicle to deliver corrective genes to the brain and other parts of the central nervous system.

The medical genetics group at the School has a long history of investigating the genetics, biochemistry, pathology, and treatments of animals with genetic diseases. Studies of these naturally-occurring counterparts of human genetic diseases have contributed to understanding both human and animal health. The Wistar Institute is an independent basic science research center located on the Penn campus with programs in virology, molecular genetics, cell and developmental biology, cancer therapies, structural biology and immunology.

The work was supported by grants from the National Institute of Diabetes and Digestive and Kidney Diseases, the National Institute of Neurologic Disorders and Stroke, the National Institute of Allergy and Infectious Disease, the National Center for Research Resources, the Mrs. Cheever Porter Foundation, and the Lucille P. Markey Charitable Trust.



A mouse afflicted with MPS VII.

Fifteenth Annual Feline Symposium

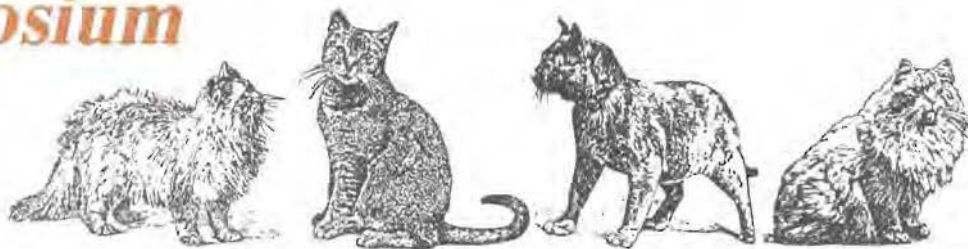
The Fifteenth Annual Feline Symposium was held April 11, 1992 at VHUP. More than 120 people attended, the largest attendance ever for the symposium. Following are the summaries of the presentations.

Common Feline Emergencies

Feline medical emergencies are typified by a unique set of injuries and illnesses, and cats have a tremendous ability to recover from most of them. Dr. Kenneth Drobatz, assistant professor of emergency medicine and chief of VHUP's 24-hour emergency services, discussed some common feline medical crises.

Trauma is a prevalent problem for urban cats. The most common accidents involve cats struck by cars or fallen from high-rise buildings. A study of the latter found that the most serious injuries occurred in cats that fell from between five and nine stories. Interestingly, cats that fell from more than nine stories generally experienced not as severe damage because they hit a terminal velocity while falling. Having stopped accelerating, they relaxed, and their muscles were not as tensed when they hit the ground.

The shock that often results from trauma is normally marked by labored breathing and poor blood circulation resulting from low blood pressure. Trauma victims are usually in shock, so practitioners normally assess airways first, and then check mucous membranes, which become pale with poor circulation. If a compromise exists, the patient may be given oxygen to assist breathing and IV fluids to increase blood pressure. Kidney damage, ruptured bladders and diaphragmatic hernias are commonly seen in accident victims. When a diaphragmatic hernia occurs, the diaphragm is no longer able to prevent the abdominal organs from slipping into the chest cavity. This slippage inhibits lung expansion, causing labored breathing. After the condition has been detected, normally by radiography, a surgeon will open the abdomen, pull back the abdominal organs and suture



the diaphragm.

Pneumothorax, leakage of air from the lungs into the chest cavity, is another accident-related complication which may cause lung compression. A cat suffering from pneumothorax is difficult to work with because it is experiencing difficulty breathing, so it is normally put into an oxygen cage immediately. Once calm, a needle may be inserted into the chest to draw out air.

Bite wounds are usually very treatable, but may close if not treated immediately, sealing in infection. Proper drainage to flush out bacteria is critical.

A practitioner will normally explore a wound to check for muscle damage, especially in dog bite cases. Dogs tend to shake their victims, so while a dog bite may appear minor, severe muscle injury may have occurred. If a bite has penetrated the abdominal cavity, the intestines may have been punctured, resulting in leakage of harmful bacteria. In this case, a surgeon will normally open the abdomen immediately to check for intestinal perforations.

Cats hide injury and illness very well, and cats that have been wounded often appear to be sound immediately following an accident. Their condition, however, may change rapidly, and they should be monitored at a treatment facility for 24 hours. Shock and brain swelling may occur several hours after the initial trauma, and pneumothorax may develop very slowly.

Cats' lives may also be endangered by serious medical emergencies unrelated to accident, Dr. Drobatz said. Feline urologic syndrome (FUS), which may manifest itself as urethral blockage, involves the formation of crystals in the urine. Urination becomes pain-

ful and labored, and urine may be slightly bloody. While plugs may form in the narrow urethras of male cats, obstruction does not normally occur in females.

Blockage is easy to diagnose by feeling the abdomen, which swells from urine build-up. Accumulation of potassium may result, which can cause cardiac arrest, seizures, decreased blood pressure and fluid build-up in the lungs.

Very treatable, FUS must be attended to immediately to avert serious consequences. Drugs are administered to counteract the effects of excess potassium on the heart, and IV fluids are used to increase the blood pressure. A urethral catheter will flush out the plug in about 99% of cases. If this cannot be achieved a perineal urethrostomy is performed, where the penis is amputated and the urethra widened.

Pyothorax is an infection in which pus accumulates in the chest. Respiratory distress, sometimes accompanied by shock, may occur. Treatment involves drainage of pus by tubes inserted into both sides of the chest. The pus is cultured, and the tubes are removed when the bacteria count drops sufficiently. The disorder is very treatable, but requires constant monitoring for such secondary conditions as pneumothorax.

Cardiac emergencies occur most frequently in cases of dilated cardiomyopathy, in which the musculature in the wall of the heart becomes very thin, preventing the heart from contracting normally, and hypertrophic cardiomyopathy, in which the muscles thicken, reducing the chamber size to such an extent that the heart may pump only small amounts of blood through it.

Cats with heart disease may experience respiratory distress, tachycardia, arrhythmias and sometimes hind leg paralysis, a very painful condition resulting from blood clots that migrate to the rear quarters. In most cases, feline



heart disease involves hypertrophic, rather than dilated, cardiomyopathy, but an ultrasound is required for accurate diagnosis. Once the condition has been determined, a diuretic and vasodilator may be administered, and the cat may be put into an oxygen cage to stabilize prior to further examination.

Because cats have a remarkable ability to hide severe infirmity, accidents and minor irregularities should receive immediate medical attention. Their hardiness, however, lends credence to the nine-lives myth, as they often overcome very serious ailments. J.C.

Feline Behavior: Understanding the Problem Cat

Feline behavior problems are almost as varied and complex as the factors which cause them, according to Dr. Karen L. Overall, lecturer in behavioral medicine, who runs the Behavior Clinic at VHUP. Dr. Overall profiled some prevalent feline behavioral disorders, particularly elimination problems, and she recommended ways to eradicate them.

Most of the 20-60 feline related phone calls the Behavior Clinic receives each week, Dr. Overall explained, concern inappropriate elimination. Many behavior problems not associated with elimination, such as aggression, in cats originate during key developmental stages, known as "sensitive periods." Onset of the socialization period occurs at about three to four weeks of age, at which time play and ample stimulation from people and other cats is critical. At about five weeks, they begin to develop predatory behavior, and at about seven weeks, they concentrate on their eye-paw coordination skills. Kittens continue to develop socially until about twelve to fourteen weeks of age.

Feline and canine developmental cycles should not be equated, as developmental periods in cats begin earlier and have shorter duration. If an owner fails to make available to a kitten the requisite stimuli during these

key stages, the risk of its developing behavioral problems associated with the neglected periods is greater. Dr. Overall summarized the results of a study, by Dr. Eileen Karsh at Temple University, which found that cats handled by human beings at earlier ages (two to seven weeks) were more comfortable with people in later life.

Normal feline behavior is also dependent upon early exposure to other cats. A kitten completely isolated from other cats until ten months of age becomes very hostile and cannot function socially. This may be a factor in problems often seen in early-weaned stray cats; because many of these cats were never taught how to play as kittens, as adults, they play in a very predatory manner.

Dr. Overall described the case of a client who brought in a stray cat that she spent every evening fending off. "Everything the cat did was in a predatory rather than a social context," Dr. Overall said.

Feline maternal nutrition is also a factor. If prepartum maternal nutrition is decreased by 50%, potentially common among urban strays, newborn kittens are often neurologically undeveloped. These cats are usually very aggressive, and tend to overreact to situations.

Whether expressed through "let-me-go-bites," furniture scratching or possessive behavior, aggression towards people and other cats is a common feline problem. In order to avoid actual confrontations, most cats give clear warning signs to discourage encroachers. Every cat owner should be familiar with these postural and facial signals in order to avert danger, Dr. Overall cautioned.

Commonly linked with anxiety, aggression can be precipitated by the presence of certain people or animals, as well as by such changes in household structure as death and divorce. While the owner is usually not the cause of the cat's problems, he or she may induce stress, which could exacerbate the cat. Chewing, howling and other anxiety responses may be controlled with such negative reinforcements as fog horns and water pistols, effective deterrents when used within 30-60

seconds of the onset of the behavior. However, if the cat is not exhibiting the behavior to get the owner's attention, anxiolytic drugs may be needed to treat the underlying problem.

Aggression can be coupled with elimination problems in the case of spraying, where cats mark their territories with urine. Research by a group in England and by Dr. Amy Marder at Tufts University found that in households of ten or more cats, the probability that at least one cat sprays at some point in time is 100%. Sometimes associated with mating and courtship, spraying is more common in males than in females, and seen more in sexually mature cats than in immature ones. Castration and spaying can greatly diminish the incidence of this behavior.

If a cat is urinating or defecating in areas other than the litter box in order to mark its territory, the owner must attempt to treat the aggression problem, as well as to interrupt the behavior with negative reinforcement as soon as it commences. Drug therapy may be successfully implemented to mitigate spraying and other unacceptable behaviors associated with aggression and anxiety. Benzodiazepines, such as Valium and Tranxene-SD, induce cessation of spraying in 60-90% of cases. Progestins are used with some success, and Buspirone (BuSpar), a new non-specific anxiolytic, has also been employed effectively.

By far the most common elimination problem is substrate preference, which reflects a cat's penchant for the feel of a rug, cloth, newspaper or other substance, which may be coupled to an aversion to the material in its litter box.

Following declaw procedures, many cats, having become partial to the softer materials placed in their cages at the vet, eschew the gritty substance in their own litter boxes because it hurts their toes.

It is important to realize that once a cat is put in a position of sampling a new substrate or location, it may never revert to a previous situation. Similarly, if a cat begins to eliminate elsewhere because of litter box filth,

blocked access or even proximity to a person or animal it dislikes, it may develop a location or substrate preference.

Location and substrate preferences can sometimes be combatted with the use of plastic, the feel of which most cats dislike. If a location preference exists, the cat's litter box should be temporarily moved to the preferred spot.

Elimination problems can also have a physical basis, so when a behavior problem is suspected, the practitioner normally tests first for physical illnesses; 50% of cats that visit the behavior clinic must undergo medical treatment for underlying physical problems that have caused their behavior anomalies.

Feline maladaptive behavior can seriously disrupt a household, and the owner should invoke the help of a behavior specialist should medical tests come back negative. Then, with a balanced dose of behavior modification for inappropriate behavior and praise for good behavior, accompanied by patience, experimentation and possibly drug therapy, a win-win situation may be attainable.

J.C.

Diseases in the Geriatric Cat

Older cats may experience any of a number of medical complications. Dr. Meryl Littman, associate professor and chief of medicine at VHUP, highlighted the disease processes, symptoms, diagnoses and treatments of three common disorders of geriatric cats - hypertension, hyperthyroidism and chronic renal failure.

Quite prevalent in older cats, **hyperthyroidism** is marked by excessive secretion of the thyroid hormone, thyroxine, which catapults the animal into a hyper-metabolic state.

According to Dr. Littman, 95%-98% of cats with hyperthyroidism experience weight loss, and most of them undergo appetite increase. There is an exception to every rule, however, and some may experience suppressed appetite.

Other signs include hyperactivity, panting, high blood pressure, rapid heart rate, heart enlargement, blood testing, murmurs and arrhythmias. Affected cats may also experience nausea, polydipsia - excessive thirst, and polyuria - excessive urination.

Diagnostic tests include palpation of the thyroid glands to check for enlargement, blood testing, thyroid scans

and thyroid biopsies when malignancy is suspected. Most veterinarians also listen for heart murmurs, arrhythmias and triple-beat gallop rhythms. Other cardiovascular tests include chest radiographs, EKGs, and echocardiograms. Practitioners may check the blood pressure and the retinas, which may show damage due to high blood pressure.

Standard serum tests - complete blood count (CBC) and chemscreen, which measures several chemical levels in the blood, are normally ordered, and a urinalysis, which may reveal low urine specific gravity, may also be performed.

T3 and T4 tests, which measure the amount of thyroxine in the blood, must be specially ordered. If the results are borderline normal, a more sensitive T3 suppression test may be done to make a final determination.

Several treatment options exist for hyperthyroidism. Drug therapy may include Tapazole or radioactive iodine in therapeutic doses, as well as antihypertensive drugs if needed. After stabilization, Dr. Littman said, T4 tests should be repeated every three months.

More common in male cats, **hypertension** may be a problem for elderly cats. In studies done at VHUP, the mean age of cats with the disorder was 15 years. Dr. Littman recommended diag-



Mrs. Edith Young and Mrs. Robert V. Clark, Jr., two enthusiastic supporters of the Feline Symposium, Dr. M. Josephine Deubler holding the rosette presented by the Morris and Essex Cat Club, and Mr. Richard Gebhardt, who judged at the benefit show.

Cat Show Raises Funds For Feline Programs

The Morris and Essex Cat Club, with support from the National Birman Fanciers, the Long Island Cat Club, and Purfect Persians, hosted a cat show on April 12, 1992 at the Penn Tower Hotel to benefit feline programs at the School. The organizers of the show raised \$1,902.49 for feline programs at Penn.

nosis of hypertension only in cases where the pressure exceeds 160/100mm Hg, to allow for situational anxiety that many cats experience when taken to the veterinarian.

When the blood pressure increases, vessels in the eye may burst. Retinal hemorrhage and detachment may cause one of the more serious complications of hypertension - blindness. The objective, however, is to stem further damage by recognizing ruptures before the cat goes blind.

In a study performed at VHUP, 41% of cats with elevated blood pressure experienced such neurologic signs as stroke, seizure and temporary limb paralysis. Other signs are renal failure and heart failure, which may be prompted by hypertension. Polydipsia/polyuria, weight loss, hyperthyroidism, nosebleeds, labored breathing and, in extreme cases, sudden collapse, coma and death, have been associated with hypertension.

Diagnostic tests include blood pressure measurements, ocular, thyroid and neurologic exams and blood work-ups. Veterinarians usually check for left ventricular hypertrophy, kidney shrinkage and low urine specific gravity. Chest and abdominal radiographs and ultrasounds are usually performed to monitor the heart and kidneys.

When a cat is diagnosed with hypertension, it is normally put on a low-salt diet, and diuretics are administered to facilitate salt excretion. Beta blockers, such as Tenormin and Inderal, and ACE inhibitors, such as Vasotec and Capoten, may be used to lower the heart rate. Anticonvulsive drugs may be prescribed if seizures have occurred.

Chronic renal failure is a fairly common problem for middle-aged and older cats. No breed or sex predisposition exists, and the average age of cats experiencing the disorder is nine years.

Many of the symptoms are similar to those of hyperthyroidism - weight loss, dehydration, low urine concentration and high blood pressure. Kidney shrinkage, anemia, vomiting and occasional appetite loss may also be present.

A complete blood work-up may show many of the signs of renal failure. The creatinine and BUN levels are elevated because the cat's detoxification system is impaired, and serum acidosis and elevated cholesterol may be present.

Urinalysis may show low urine specific gravity and/or excess protein. Veterinarians may order a urine protein creatinine ratio to determine urinary protein excretion levels. A cat that is experiencing chronic renal failure may also be tested for two diseases - feline immunodeficiency virus (FIV) and toxoplasmosis - which can affect the kidneys. Dietary regulation is one of the most important control measures for kidney failure. A low-protein diet may decrease serum BUN levels, probably high as a result of the kidneys' inefficiency in excreting toxic waste products from protein metabolism.

Cat owners may administer subcutaneous fluid injections to maintain hydration. Acidosis may be treated by giving affected cats sodium bicarbonate, and erythropoietin may be administered for anemia. Once stabilized, the cat should be checked by a veterinarian every two to four weeks.

Kidney transplants are not a usual form of treatment for cats with renal failure, as they may cause complications for both cat and owner. Kidney failure is a serious problem for cats, and the success of each individual usually depends upon its owner's

willingness to administer medications and prepare special meals. Euthanasia sometimes is the most responsible answer.

Cats should receive annual check-ups from birth; in later years, they should be seen twice annually, and every owner should prepare early for his/her pet's old age. At about seven years of age, cats should have complete blood work done, so that baseline levels can be established for comparison if the cat experiences geriatric complications in later years.

J.C.



Canine Symposium

The 23rd Annual Canine Symposium will be held on January 23, 1993 at the Veterinary Hospital of the University of Pennsylvania in Philadelphia.

Topics covered will be thyroid disease (Dr. Carole A. Zerbe), diseases of the geriatric dog (Dr. Meryl P. Littman), canine behavior problems (Dr. Karen Overall), and ultrasound diagnostics (Dr. Mark Saunders).

The fee for the all-day program will be \$45; this includes lunch and parking. A detailed program and the reservation forms can be obtained by contacting Dr. M. Josephine Deubler, VHUP, 3850 Spruce Street, Philadelphia, PA 19104.



High Speed Treadmill installed at New Bolton Center



Nostrils flaring, mane flying and legs moving at a fast pace, the Standardbred leans into the breastplate, going at top speed. Only this horse is not racing for the finish line, it is running on New Bolton Center's high-speed treadmill during a diagnostic work-up. While the stallion is moving as if in a head-to-head contest, Dr. Tulleners manipulates an endoscope, inserted into the horses' throat through a nostril, to examine the horses' larynx. Tulleners and students watch the image on a large TV screen to detect irregularities in the airways that may explain the noisy breathing of the racer.

Opened late this summer, the Jeffords Treadmill Facility adds a new diagnostic dimension to New Bolton Center's services. The 2,000 ft² building encompasses a large two-story space, two stalls and a laboratory. The centerpiece is the high-speed treadmill, enclosed by "bulletproof" polycarbonate to protect people and horses. The building is air-conditioned and equipped with a battery of fans for not-so-hot days.

"This treadmill can attain a speed of 37 miles per hour," says Dr. Benson Martin, assistant professor of sports medicine and director of the treadmill facility. "Its running surface can be raised to duplicate an uphill slope of six degrees which forces the animal to

work harder. This allows us to simulate racing conditions. For many diagnostic procedures we need the animal to work up to 200 - 240 heart beats per minute, the heart rate at racing speed."

The speed of the running surface is controlled from a console. Horses are walked on the treadmill, up against a breast plate and are tethered. A safety harness is connected to an overhead device which automatically stops the machine should the horse stop running. The operating technician is assisted by at least one other person to keep the horse running. The equipment starts at a walking speed, then gradually accelerates to a trot and then to whatever speed is required for the diagnostic procedures.

The treadmill is a service department that is used by clinicians for detailed work-ups. "It enables us, for example, to perform a cardiovascular evaluation utilizing a radiotelemetric heart monitor while the animal is running," says Dr. Martin. "Or we can use the endoscope to observe the animal's airways while it is at racing speed. This is particularly important for noisy breathers and for evaluating 'bleeders'."

The facility is used for lameness evaluation at low and high speeds. Other clinical tests, performed while a horse is running, measure oxygen consumption, CO₂ production, lactic acid

production, respiratory flow and upper airway pressure.

The treadmill is important to researchers engaged in orthopedic studies, cardiovascular and pulmonary studies, the research involving EIPH and the work on "tying up." With the treadmill in place, racing demands can be duplicated and the horse can be hooked up to instruments to measure such functions as respiratory flow, pulmonary and arterial pressures, blood pressure, venous pressure, body temperature, oxygen consumption, CO₂ production, cardiac output, blood gases, lactic acids, glucose metabolism and oxygenation. Many of these measurements can be fed directly into the three computers, located in the laboratory adjacent to the treadmill. "This facility enhances our research abilities tremendously," says Dr. Lawrence Soma, who has studied EIPH for many years.

Plans are underway to add additional diagnostic equipment to further utilize the treadmill. Funds are being raised to purchase scintigraphy equipment so bone scans can be performed to detect causes of lameness.

The Jeffords Treadmill Facility is under the auspices of the Section of Sports Medicine which is headed by Dr. William Moyer, professor of sports medicine.

The building and the acquisition of the treadmill were made possible through the generosity of a number of anonymous donors, Dr. Peter D. Blauner, Mr. and Mrs. Jesse M. Bontecou, Mr. F. Eugene Dixon, Jr., Mrs. Richard C. duPont, Mr. and Mrs. Henry R.C. Elser, Mr. and Mrs. William Entenmann, Mr. and Mrs. M. Roy Jackson, The Jeffery Trust, Mr. and Mrs. Hardie Scott, The Sproul Foundation, Mrs. Anne French Thorington, Pennsylvania State Horse Racing Commission, F. Eugene Dixon, Jr., chairman, John A. Ballard, commissioner, Russell B. Jones, commissioner, Kenneth E. Kirchner, executive secretary, and 1990 New Bolton Center Day at the Races in Saratoga.

Treadmill Dedication



Mr. F. Eugene Dixon, Jr., chairman of the Pennsylvania State Horse Racing Commission, addresses guests during the dedication of the Jeffords Treadmill Facility in September.



Mrs. Walter M. Jeffords, Jr., with assistance from Dean Andrews, unveils the plaque noting that the Jeffords Treadmill Facility was named in loving memory of her husband.

Widener Hospital adds Laparoscopic Surgery

Surgeons at New Bolton Center' George D. Widener Hospital for Large Animals have used arthroscopes and endoscopes for a number of years. This fall two laparoscopes were added to further enhance the hospital's short procedure capabilities.

"The goal of laparoscopic surgery is to expand our diagnostic capabilities and ultimately enable us to reduce the number of major invasive surgeries we perform," said Dr. Eric Tulleners, associate professor of surgery. "For example, it may be possible to diagnose certain causes of colic, to perform an anastomosis, repair a scrotal hernia or a ruptured bladder with the laparoscope. The instrumentation provides portals that let us cut, suture or staple tissue inside the body. The incisions necessary for performing laparoscopic surgery are very small and hence the animal should recover all the more quickly. Also, the hospital stay should be considerably shorter than for conventional surgery."

In addition to the laparoscopes, the hospital acquired a new Storz light source, a new Storz camera, a larger color monitor and two new printers and a medical grade VCR. This equip-

ment integrates with the existing laser, video endoscopic, and arthroscopic equipment. "All of these different items are interchangeable, which provides a great deal of flexibility and enhances our diagnostic and treatment capabilities," said Dr. Tulleners.

Laparoscopic surgery may also play an important role in the diagnosis and treatment of reproductive problems in large animals. For example, the laparoscope may provide a less invasive method of infertility diagnosis, embryo transfer, and treatment of blocked oviducts.

The instruments also enhance the teaching and training of students and residents. "This equipment and these techniques are relatively new to veterinary medicine. Our students and resi-

dents are now able to observe, and in the case of residents, practice these techniques," said Dr. Tulleners. "Also, the new printers and VCR enable us to generate and preserve high resolution images of the various diagnostic work ups and surgical treatments. These are excellent teaching tools for students, residents, owners, trainers and referring veterinarians."

Acquisition of the laparoscopes and the other equipment was made possible through the generosity of Dr. Charles Raker, Lawrence Baker Sheppard Professor Emeritus of Surgery. Eric Hibbard of Endosurge Medical, Inc. generously donated one of the laparoscopes.



Voluntary Johne's Disease Control Program

Johne's disease costs Pennsylvania's agriculture industry more than \$6 million a year; nationwide, the losses may exceed \$1.5 billion, according to Dr. Robert Whitlock, associate professor of medicine at the School. "The disease is caused by *Mycobacterium paratuberculosis*, a bacterium related to the human tuberculosis organism. The clinical disease is usually not obvious until two to three years after exposure to the organism, but may not become apparent until five to eight more years following initial infection." The bacteria settle in the intestine where their presence causes a thickening of the intestinal lining, leading to malabsorption and loss of protein from the bloodstream into the gut. Signs of the disease include low fertility, repeated mastitis infections, unthriftiness, reduced milk production, and diarrhea. The bacteria are contained in the manure and thus spread in the herd. Newborn calves and young animals are particularly vulnerable. Therefore, the newborn calves need to be separated from the adult cattle as soon as possible after birth and reared in clean, uncontaminated facilities. Calf hutches and separate heifer barns facilitate separating young stock from the adult cattle that often serve as the source of infection.

In a recent study by Dr. Raymond W. Sweeney, assistant professor of medicine, it was shown that in utero transmission of the disease can occur in heavily infected cows, thus in some cases the calf may be born with the infection.

The state implemented a Johne's disease control program in 1973 to reduce the prevalence of Johne's disease and to provide farmers with the means to control the disease through management techniques and diagnostic support. Despite these efforts a comprehensive study by Dr. Whitlock, Dr. Sweeney and the Pennsylvania research team showed that about 25% of the 15,000 dairy herds in the state may be infected.

The program emphasized control of the disease in a herd through eradication

of afflicted animals. Studies have shown that removal of animals exhibiting clinical signs is not enough to eliminate the disease. "If you have one or two cows with clinical signs in a herd, it is likely that at least 15 to 25 others are infected. ●f those infected animals only 25 - 50% can be detected with the current tests," explained Dr. Whitlock. "Thus the removal of stock with detectable symptoms does not help to control the spread of the disease."

Now the state has launched a new, voluntary Johne's certification program. "The major objective of the program is to certify herds 'Test-negative' for the Johne's disease rather than focus the diagnostic efforts on known infected herds," said Dr. Whitlock. "The certification program involves a number of tests and guidelines for herd management that must be followed. Farmers need to be able to purchase herd replacements that are at very low risk of infection rather than purchase cattle with an unknown Johne's status."

The first step in obtaining paratuberculosis test-negative certification is completion of a cooperative agreement involving the farmer, the herd veterinarian and the Pennsylvania Department of Agriculture. Those herds for which the herd owner and veterinarian can state to the best of their knowledge the herd has not had any clinical cases in the past five years nor any laboratory evidence of paratuberculosis would be certified test negative after two negative herd tests. All other herds would require three negative whole herd tests with the last test to be based on fecal culture rather than serology. If each test is negative, then the herd would be certified as test negative. To maintain certification, the herd must be tested every 10 to 14 months. Only animals over two years of age need to be tested.

The initial test is an ELISA screening test. If an animal is positive, then a fecal culture is performed within 21 days. This test takes about 12



A cow with bottle jaw. Bottle jaw is a non-specific yet typical sign of advanced Johne's disease.

weeks. If the fecal culture is negative, the animal is considered to be test negative.

Another requirement for herds undergoing certification is that additions to the herd must come from progeny born and raised in the herd, or be animals from a certified free herd. If animals from another, non-certified, herd are added, these must be kept isolated and must be ELISA tested within 15 days. Animals in a certified herd also may not be vaccinated of Johne's disease as this would give a positive ELISA reading.

Farmers agree to provide separate stalls or calving areas for cows nearing parturition, to remove the calves from their dams within 24 hours of birth, and to rear them separately from the adults until one year of age.

The cost of the testing is borne by the Department of Agriculture. The herd owner does have to pay the veterinarian for the herd examination and for diagnostic sample collection.

"Dairy cattle are an important commodity for Pennsylvania agriculture," said Dr. Whitlock. "Not only in terms of milk production, but also for export to other states and other parts of the world. But only healthy animals can be exported, thus it is in the industry's best interest to increase the number of Johne's certified-free herds."

In addition to Dr. Whitlock and Dr. Sweeney from Penn, Dr. Lawrence T. Hutchinson from Penn State, and Dr. Max Van Buskirk from the Bureau of Animal Industry were the primary developers of the paratuberculosis test-negative certification program.

While this program is under way, research is continuing to develop faster test methods and to refine the existing tests. The Penn team has been able to decrease the fecal test time from 16 weeks to 12 weeks by employing special centrifuging techniques that concentrate the sample. Dr. Sweeney is now looking to test milk for the presence of the antibody to the Johne's organism as an early indicator of infection. He is developing filtration techniques for large volumes of milk to concentrate the sample. Because *M. paratuberculosis* is such a slow growing organism, bacteria need to be present at a certain concentration before they will become evident in culture.

Johne's disease is not only a threat to agriculture, it also affects other



Herrold's egg yolk media with the typically appearing colonies for Mycobacterium paratuberculosis. The Johne's organism often requires 10-12 weeks to appear visible on the media surface.

ruminants such as endangered species in zoos. A National Task Force on Johne's Disease has been formed to combat the disease. Dr. Whitlock was appointed, along with Dr. Max Van Buskirk. On a historic note, the disease was first identified to be present in the USA by Dr. Leonard Pearson, in 1905. Dr. Pearson served as the third dean of the School, from 1897 to 1909.

LMAH Moves to New Quarters



Steve Rosenthal

Dr. Donald Abt, Robert R. Marshak Term Professor of Aquatic Animal Medicine, is an old hand at moving laboratory facilities from one building to another. "I was at the School when we moved offices and laboratories into the Rosenthal Building. I moved again when VHUP opened," he said. "This current move was a joy. We now have ample excellent research and service space on the second floor of the brand new Marine Resources Center (MRC), the latest addition to the Marine Biological Laboratory (MBL) in Woods Hole."

The space has been designed specifically for the research, service and teaching programs of the Laboratory for Marine Animal Health (LMAH) and AQUAVET® in addition to providing the MBL with essential new space for their mariculture research efforts. The facilities include special holding tanks for maintaining and culturing healthy marine organisms and isolation tanks appropriate for research on diseased organisms. The one-of-a-kind seawater life support system in the MRC simultaneously can provide up to eight tailor made marine environments to the animal holding tanks.

The LMAH is staffed by four veterinary scientists with specialty training in microbiology, pathology and epidemiology and a part-time par-

asitologist, based at the main campus in Philadelphia. The professional staff are supported by three technicians and a secretary.

The LMAH provides diagnostic veterinary services for laboratory animal needs of the Marine Biological Laboratory, the Woods Hole Oceanographic Institution, and the Northeast Fisheries Research Center of the National Marine Fishery Service. The research effort of the LMAH is primarily focused on naturally occurring diseases of marine animals used as laboratory animals. In addition, numerous research projects arise from health problems encountered by investigators seeking to culture a given marine organism in the artificial environment of the research laboratory or within a commercial aquaculture facility.

Examples of current research projects include studies on: the life cycle of a shark cestode (tapeworm); ocular diseases in captive pinnipeds; mortalities in juvenile seed oysters; dinoflagellate infection of oysters; *Pseudomonas* infections in skates and a parasitic infection of annelid worms,



Rosettes & Ribbons

Members of the **Center for Veterinary Critical Care** and other VHUP staffers made their presence felt at the Third International Veterinary Emergency and Critical Care Symposium in San Antonio, TX. Papers were presented by **Drs. Michael G. Conzemius, Urs Giger, Sue Hackner, Joan Hendricks, Lesley King, Kathryn Michel, Robert Moreau, Cynthia Otto, and Susan Westmoreland.** Sally Powell and Nancy Shaffran of the ES and ICU nursing staff also presented papers, as did **Kathleen Dunn**, VHUP's social worker.

Dr. Linda Keller, research assistant professor, was an invited speaker at a symposium entitled "Improved diagnosis of avian diseases using molecular techniques" held in conjunction with the AVMA meeting in Boston in July. Dr. Keller presented a paper "The use of monoclonal antibodies specific for *Salmonella enteritidis* as diagnostic and research reagents." Dr. Keller also presented a paper at the Avian Medicine Section of the meeting, entitled "Tracking *Salmonella enteritidis* through the ovarian tissue of laying hens with specific monoclonal antibodies." The co-authors of this paper are **Drs. Charles Benson and Robert Eckroade.**

Dr. Gary Smith, associate professor in population biology and epidemiology, was an invited keynote speaker at the Joint Meeting of the Australian and New Zealand Societies for Parasitology in September in Auckland, New Zealand. After the conference Dr. Smith gave an invited lecture at the Wallaceville Animal Research Centre, New Zealand Agriculture Research Institute, and at the McMaster Laboratory of CSIRO in Sydney, Australia. Each of the talks dealt with "Mathematical models of infectious diseases of Veterinary Importance." Dr. Smith has been

invited to participate in an FAO Expert Consultant Committee in Nairobi, Kenya in November. He will give two papers on the implementation of mathematical models of veterinary diseases in developing countries. Dr. Smith has been invited to participate in the "Epidemic Models" research program at the Isaac Newton Institute of Mathematics, University of Cambridge, U.K. from March to May, 1993.

Dr. Gall Smith, V'74, associate professor of surgery, received the second year of funding from Ralston Purina for hip dysplasia research. The Morris Animal Foundation and the Seeing Eye, Inc. awarded him a third year grant for study of hip dysplasia heritability. In September Dr. Smith was invited to Sweden where he gave three scientific presentations at an International Symposium on hip and knee joint lesions in the Dog and Man. Dr. Smith was elected to the board of directors of the Veterinary Orthopedic Society.

Dr. Beth Callan, V'88, transfusion medicine fellow, **Dr. Kenneth L. Drobatz**, assistant professor of medicine, and **Dr. Jerry Waddle**, consultant in oncology, are new diplomates in internal medicine. **Dr. Sherrill Davison, V'83**, assistant professor in avian medicine and poultry pathology, is a new diplomate of the American College of Poultry Veterinarians.

Dr. Donald Abt, V'61, Robert R. Marshak Term Professor of Aquatic Animal Medicine and Pathology, received the Merck Creativity Award for his leadership in the AQUAVET® program. The award is sponsored by Merck AgVet. Dr. Abt has been installed as a board member of the International Association for Aquatic Animal Medicine.

Christine Lundy, V'96, has the use

of a microscope donated by the University of Pennsylvania Women's Club in honor of Doris and Bill Boucher. In the Fall of 1994 the microscope will be given to another incoming student.

Kathleen Dunn, VHUP's social worker, presented a paper at the Sixth International Congress of the Delta Society in Montreal in July. The co-authors were Dr. Aaron H. Katcher and Dr. Kenneth Bovee.

Dr. Murray Iobst, V'43, has expanded his book "Do You?" It is published by the L.J.B. Foundation; the first edition was published in 1974.

Dr. Gustavo D. Aguirre, V'68, professor of ophthalmology, and **Dr. Mark E. Haskins, V'69**, professor of pathology, were elected to the Fellowship of the College of Physicians of Philadelphia.

Dr. Colin E. Harvey, professor of surgery and dentistry, recently completed work on a comprehensive textbook of small animal dentistry, written jointly with Dr. Peter Emily. The book will be published by C.V. Mosby Co. early in 1993. Dr. Harvey also edited an issue of the *Veterinary Clinics of North America* on Feline Dentistry, to be published in November. He recently presented papers at the inaugural meeting of the European Veterinary Dental Society in Rome, the inaugural meeting of the Spanish Veterinary Surgical Society in Madrid, British Veterinary Dental Society and British Small Animal Veterinary Association (Birmingham), Regional CNVSPA (Morgine, France), and The Free University of Berlin (Germany), and conducted continuing education wet-labs at the Birmingham University (England) Dental School, Complutense University of Madrid (Spain), and the School of Dental Medicine, University of Pennsylvania. He was a member of the Scientific

Organizing Committee and presented papers and practicums at the World Small Animal Veterinary Association Congress in Rome. Dr. Harvey is engaged in collaborative projects with the University of Kansas, Kansas State University, Nihon University (Japan), and Liverpool University (England).

Dr. Charles Benson, professor of microbiology, has been appointed an advisor to the National Committee for Clinical Laboratory Standards.

Mr. James Hayden, a research specialist and photographer in the department of pathobiology, has been board-certified as a registered biological photographer (RBP) by the Biological Photographic Association. He also received an Honorable Mention in the 1992 Nikon Small World Competition for his darkfield transparency "Adnexal (The Picasso) Nevus."

Dr. Mattie Hendrick, V'78, assistant professor of pathology, **Dr. Thomas Van Winkle, V'75**, assistant professor of pathology, and **Dr. Alan M. Kelly**, professor of pathology, gave presentations at the C.L. Davis European Pathology Symposium, held in York, England.

Dr. Phillip Scott, assistant professor of parasitology, was an invited speaker at the International Congress of Immunology, held in Budapest, Hungary. He presented a featured paper on the role of Natural Killer Cells in the immune regulation of leishmaniasis. Dr. Scott was one of the two co-organizers of the 13th Annual Philadelphia Regional Immunology Conference, held in October.

Dr. Thomas Nolan, clinical veterinary parasitologist, and **Dr. Gerhard Schad**, professor of parasitology, presented papers at the annual national meeting of the American Association of Veterinary Parasitologists held in conjunction with the AVMA meeting in Boston.

Dr. Roxanna Smolovitz, research associate at the Laboratory of Aquatic Animal Health and Pathology, has received a grant from the National Marine Fisheries Service to study Parasite Problems in Juvenile Oysters. The Department of Agriculture,

Northeast Regional Aquaculture Center, has awarded Dr. Smolovitz a grant to study Juvenile Mortality in Oysters.

Dr. Roselyn Eisenberg, professor of microbiology, has had her NIH Training Grant in Virology renewed for four more years. This funds six predoctoral positions. She is principal investigator on a Program Project grant on "Pathogenesis of Persistent Viral Injury to the Central Nervous System" that has just been funded. This program project funds three projects in the medical school and one here.

Dr. James W. Buchanan, professor of cardiology, received an award for best paper in 1991-92 utilizing data from the National Veterinary Medical Database for his chapter entitled: "Causes and Prevalence of Cardiovascular Disease" in *Current Veterinary Therapy XI*. Dr. Buchanan presented the Annual Gary Bolton Memorial Lecture at the Academy of Veterinary Cardiology/AAHA meeting in New Orleans, LA in May. That same month he presented a paper at the American College of Veterinary Medicine 10th Annual Forum in San Diego, CA.

Dr. Richard J. Clement, V'77, a practitioner in the Washington D.C. area, received a patent for a new X-ray ID process for identifying x-rays and x-ray envelopes.

Dr. James S. Reid, V'62, of Vienna, VA was elected to a six year term on the Council of Veterinary Services by the American Veterinary Medical Association at the annual meeting in August. Dr. Reid is a member of the board of directors of

the Virginia Veterinary Medical Association and is the director of the Vienna Animal Hospital.

Dr. Walter M. Woolf, V'60, appears as the "Pet Doctor" on the Tampa NBC station (WFLA-TV) on the *NewsWatch 8 at Noon* program. The show is broadcast live from Busch Gardens.

Penn's School of Veterinary Medicine was pronounced to be "the best veterinary school in the world" by Bill Cosby on the Sep. 29th episode of *You Bet Your Life*.

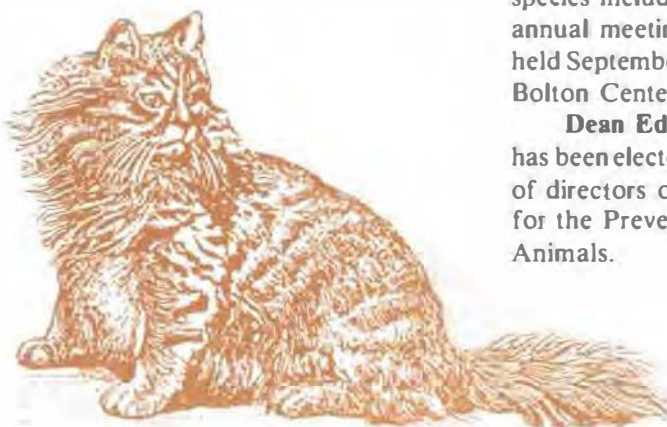
Dr. Robert Washabau, V'82, assistant professor of medicine, presented a paper entitled "Calcium-activated potassium channels in gastrointestinal smooth muscle" at the annual meeting of the American Gastrointestinal Motility Society, held in Lake Tahoe, CA in September.

Dr. David Knight, professor of cardiology, presented a paper at the meeting to the Japanese Association of Veterinary Cardiology in June. While in Japan, he also lectured at the veterinary school of Azabu University, an institution with close ties to the School.

Dr. Steven Fluharty, associate professor of pharmacology, has joined **Dr. Adrian Morrison**, professor of anatomy, as a co-editor of the series, *Progress in Psychobiology and Physiological Psychology*, published by Academic Press.

Dr. Corinne R. Sweeney, associate professor of medicine, has been elected president of the Comparative Respiratory Society, an organization that provides an international forum for the exchange of information about respiratory diseases in all animal species including humans. The 1993 annual meeting of the group will be held September 26 and 27, 1993 at New Bolton Center.

Dean Edwin J. Andrews, V'67, has been elected a member of the board of directors of the American Society for the Prevention of Cruelty to Animals.



Dr. David Kritchevsky, adjunct professor of biochemistry, delivered the Quartercentenary Lecture at a symposium of The Nutrition Society (U.K.), held at Trinity College, Dublin, Ireland.

Dr. William Morton, V'67, and colleagues at the University of Washington in Seattle have developed a new animal model for HIV-1 by showing that pigtail macaques can be infected with the virus.

Dr. Jorge Guerrero, adjunct professor of parasitology, has been named "Universal Veterinarian of 1992." The award is given under the auspices of the World Veterinary Association. The award was presented in July in Salamanca, Spain.

Dr. Donald F. Patterson, Charlotte Newton Sheppard Professor of Medicine, received the 1992 World Small Animal Veterinary Association Scientific Achievement Award. It was presented at the organization's meeting in Rome in September.

Dr. Raymond W. Sweeney, V'82, assistant professor of medicine, is the recipient of the North American Outstanding Teacher Award. The award was presented to Dr. Sweeney by Norden at the meeting of the American Association of Veterinary Medical Colleges in Boston in August.

Dr. Craig Rowan, V'48, was honored by the American Association of Bovine Practitioners and received the 1992 beef award, sponsored by Merck AgVet. As part of the award Merck AgVet presented \$1,500 to the School.

Appointments and Promotions

Peter J. Felsburg, V.M.D., Ph.D., joined the faculty as chairman of the Department of Clinical Studies/Philadelphia. Dr. Felsburg, Trustee Professor of Immunology, returned to Penn from the Veterinary School at Purdue University where he was professor of immunology. Prior to that he held the position of associate professor of immunology at the College of Veterinary Medicine, University of Illinois. Dr. Felsburg is a member of the Class of 1969 and he received his Ph.D. from the University in 1973. His research interests are clinical immunology and immune-mediated diseases of dogs.

The following were promoted: Dr. Peter Dodson to professor of anatomy in animal biology; Dr. Steven J. Fluharty to associate professor of pharmacology in animal biology; Dr. James Orsini to associate professor of surgery; Dr. Gary Smith to associate professor of population biology and epidemiology.

The following were appointed: Dr. Sandra Perkowski as lecturer in anesthesia; Dr. Kenneth L. Drobatz as assistant professor of medicine; Dr. John C. Fyfe as research assistant professor in medical genetics; Dr. David E. Holt as assistant professor of surgery; Dr. K. Ann Jeglum as adjunct associate professor of medical oncology; Dr. Erika L. F. Holzbaur as assistant professor of biochemistry in animal biology; Dr. Michaela A. Kristula as assistant professor of Medicine at the George D. Widener Hospital; Dr. Wendy Freeman as assistant professor of medicine; Dr. John R. Pehrson as assistant professor of biochemistry in animal biology.

The following were reappointed: Dr. Deborah Gillette as assistant professor of pathology in the clinical educator track; Dr. Philipp Scott and Dr. Amiralli as assistant professors in pathology; Dr. Jorge Guerrero and Dr. William Campbell as adjunct professors of parasitology; Dr. Jerry Franz, Dr. Clay Fredrick, and Dr. Larry Lomax as adjunct associate professors of pathology; Dr. George Davis as adjunct professor of parasitology.

Welcome, New Interns and Residents

On July 1 a new group of residents and interns joined the staff at VHUP and at the George D. Widener Hospital. At VHUP the new interns are: Dr. Lillian Ruth Aronson, Dr. Paul John Cappiello, Dr. Dorothy M. Cimino, Dr. Ruth A. Darrigrand, Dr. Denise A. Elliott, Dr. Susan Taft Floyd, Dr. Petra Anna Lackner, Dr. Stefanie Jennifer Lin, Dr. Joanna Terese Manz, Dr. Joerg M. Steiner, Dr. Robin Pullen. The VHUP residents are: Dr. Lori W. Cabell (surgery-orthopedics), Dr. Jill L. Sammarco (surgery-soft tissue), Dr. Chantal Parent (emergency medicine), Dr. Anna Fong (radiology), Dr. Monika Griot-Wenk and Dr. Nancy A. Sanders (small animal medicine), Dr. Carl D. Sammarco (cardiology), Dr. Christine A. Johnson (dermatology), Dr. Charles H. Vite (neurology), Dr. Eva Marie Sarkiala (dentistry), Dr. Stanley D. Dannemiller (laboratory animal medicine), and Dr. Laurie Sorrell-Griffin (anesthesiology).

At the Widener Hospital the new residents are: Dr. Caroline Twitchell (field service), Dr. Eric Twitchell (reproduction), Dr. Nancy Diehl and Dr. Peyton Jones (medicine), Dr. Jan Hawkins and Dr. Francois Martin (surgery), Dr. Enrique Correa (pathology), and Dr. Javier Martinez (poultry).

Parasitology Meeting

The Laboratory for Parasitology organized and was host to the 67th annual meeting of the American Society of Parasitologists. The meeting, held at the Penn Tower Hotel, was attended by 400 scientists, mostly from the United States and Canada, including several from the Pacific Rim Countries and from Europe and Africa. Dr. Jay Farrell, associate professor of parasitology, was the chairman of the organizing committee.



VHUP Endoscope Enhanced

The depth of VHUP's endoscopy service was enhanced by the addition of a new, more powerful light source and a 100 millimeter bronchoscope. This equipment was made possible through the generosity of Mr. and Mrs. Jay Remer, Villanova.

"The new light source tremendously enhances our ability to perform gastrointestinal endoscopy as well as bronchoscopy in large and giant breed dogs," says Dr. Robert Washabau, assistant professor of medicine. "The other light source was not sufficiently bright enough for studies in large and giant breed dogs. And, the other bronchoscope was not of sufficient length for these larger dogs. With the new equipment we can now offer the same services to all breeds of dogs."

The new equipment adds to the teaching facilities at the hospital as it is integrated into the existing video array. The video array allows for a number of people to observe a given procedure. It took nine months for the bronchoscope to arrive. The reason, according to Dr. Washabau, "an entire production line had to be shut down to



Dr. Robert Washabau, Dean Andrews, Mrs. and Mr. Remer.

manufacture the bronchoscope, which because of its length, did not conform to the regular production run."

Mary and Jay Remer made the donation in honor of their maternal grandmothers, Virginia Simmons duPont, Mr. Remer's grandmother who raised greyhounds and sporting dogs under the Squirrel Run prefix, and Lillian Wood Febiger, Mrs. Remer's grandmother who had Dandie Dinmont and Sealyham terriers.



Dr. Washabau shows the new bronchoscope.

Jack Mara/Hill's Dean's Scholarship



The School honored Dr. John L. Mara, director of veterinary affairs, Hill's Pet Products, on June 2, 1992 by naming a scholarship in his honor. The

Jack Mara/Hill's Dean's Scholarship is the third scholarship funded through the proceeds of the sale of pet food provided by Hill's to the School for the

Student Feeding Program.

Dr. Mara, a member of the Class of 1951 of the New York State College of Veterinary Medicine at Cornell University, has directed veterinary affairs for Hill's since 1979. He has worked tirelessly to promote the company's veterinary college program and is an advocate of nutrition research, education, and teaching.

Hill's supports the veterinary dental residency program, a nutrition residency program at the School, and the renovation of the kitchen in the patient wards at VHUP.

The Jack Mara/Hill's Dean's Scholarship brings to 20 the number of fully endowed Dean's Scholarships at Penn's Veterinary School. The 20 scholarships represent a total of \$1,000,000 accumulated over the past three years for the Dean's Scholars Program.



Animal Crackers

Admissions

In 1992, 560 student from 56 different institutions applied to the University of Pennsylvania School of Veterinary Medicine, including 166 Pennsylvania residents. Two hundred nineteen offers were extended to fill the class of 109 students. Of the acceptances, 55 were accepted without an interview. Sixty-three, or 58% of the first-year class, are Pennsylvania residents. The largest feeder school was Cornell, with 11 students, and six are University of Pennsylvania graduates. The mean age of the entering class is 25.2 years.

New Jersey provides funds to support 12 veterinary students at Penn and Puerto Rico supports one student every other year.

Antifreeze Poisoning

Cats may climb into car motors to hide, find warmth and lick antifreeze that has been spilled around the radiator cap. The ethylene glycol in antifreeze has a sweet odor and taste and seems to lure animals. A very small amount of antifreeze can be lethal. If an animal has had contact with contaminated surfaces, seek veterinary attention immediately.

Australian Cattle Dogs

In January 1993, the Australian cattle dog will become the 135th breed competing for championship points at AKC-licensed dog shows in the herding group.

This is a medium-sized dog about 21 inches in height at the withers. The tail is natural bobtail or docked short. The recognized colors are blue merle, red (liver) merle, solid black and solid red (liver) all with or without white markings and/or tan points.

The breed was introduced in the United States in the early 1900's. It is

believed to have originated in the Basque country of Spain and France and migrated with shepherds to Australia and the United States, where it became a favorite of sheep and cattle ranchers.

It is a highly intelligent and adaptable breed and has been used for tracking, narcotics detection, search and rescue and as hearing dogs. They are excellent companions and are easily trained for obedience competition.

It has been said "There's nothing like an Aussie. Once you've shared your life with one of these dogs and let them into your heart, you'll never own another breed."

Companion Dogs

It can be difficult to find a particular breed and the American Kennel Club has established a national Breeder Referral Program to help potential dog owners find breeders within their geographical area. By calling 1-900-407 PUPS (7877), you can obtain the name of a local breeder who can supply a list of sources.

It is advisable to do some research about a breed before you buy. The dear little puppy may be too much for the owner when it matures. Always investigate the amount of grooming required to keep a dog looking like those seen at shows and in television commercials.

Over-population is a serious problem and companion animals should be spayed or neutered. Responsible breeders plan their programs to eliminate genetic defects and produce animals which can be properly placed in good homes. Often you will have to wait for a puppy.

When a female is spayed, two problems are avoided. There is far less possibility of development of breast

tumors and confinement during heat periods is no longer needed.

Bitches have their first season or "heat" at about six months of age, although it may not occur until 18 months of age. Usually there are two seasons a year. There is no hard fast rule. The first stage (proestrus) when bleeding occurs lasts about nine days but may range from three to 17 days. The second stage (estrus) is the time of receptivity to mating and usually lasts about nine days but may range from three to 21 days. Confinement and careful watching may be necessary for short or long periods in unspayed bitches. Coping with this can be too much of a problem for many families.

A neutered male is generally a better house dog. He will not have as great a tendency to roam and, of course, cannot contribute to the over-population problem. Neutering may prevent development of prostate problems which are fairly common in older dogs.



Book Reviews

Dog Painting 1840-1940 - A Social History of the Dog in Art by William Secord (Antique Collectors Club, c/o William Secord Gallery, Inc., 52 E. 76th St., New York, NY 10021, \$79.50).

This book belongs in the library of dog lovers. Superb reproductions include the lapdogs of Queen Victoria and many others - pampered pets and early sporting dogs. The text covers the

origins of dog painting in Greek, Roman and European art. There is a chapter on dog painting in America. There are over 450 illustrations with 150 in full color. A perfect holiday gift.

Peak Performance - Coaching the Canine Athlete by M. Christine Zink, D.V.M., Ph.D. (Howell Book House, 866 Third Ave., New York, NY 10022, \$25.00)

This is a book for the layperson on sports medicine for the companion dog. It covers the special health needs and conditioning required for the dog to meet its fullest potential.

A chapter on how structure affects function covers physical differences in various breeds and simple details of the dog's anatomy. There are chapters on selection and routine management. There is a recommended format for a dog's record book which includes examinations for hereditary conditions, vaccinations, health checks, weight and medical history. A chapter on lameness classifies the causes as congenital, degenerative, genetic, traumatic, infectious or unknown and discusses these conditions. Nutritional disorders affecting bones and joints are obesity, the effects of feeding an all meat diet, and oversupplementation in large and giant breeds of dogs. Suggested contents for a first aid kit are given.

There is a discussion on performance-enhancing drugs (stimulants, depressants, anabolic steroids, drugs to modify heat cycles and drugs to modify appearance). How strictly should rules be enforced. It is suggested that perhaps it should be permissible and ethical to administer drugs that cure, control or comfort, but any drug giving an unfair advantage in performance should not be permitted.

The final chapter deals with stress and how to reduce it. A stressed dog will become tired and not be able to concentrate on its performance, just as in humans. Abnormal behaviors thought to be a reflection of stress in dogs include self-mutilation, tail chasing, destruction of property and aggression.

The book has a "new" approach to canine problems and should be of interest to dog owners and trainers.

Merck Summer Research Fellowships



Shown here are, from left to right: Dr. Jeffrey A. Wortman, assistant dean for academic affairs; Dr. Jan A. Bergeron, V'66, of Merck; Chris Hunsinger, V'94; Leila Worth, V'94; Steve Suter, V'95; Lisa Dinaolo, V'95; Mary Costenbader, V'95; Catherine Mullin, V'95; Jeannine Rubin-Manti one, V'95; Dr. Michael Atchison. Alysia Sinrad, V'94, the eighth participant in the program, is not shown.

The Merck Company Foundation supported eight Merck Summer Research Fellowships at the School this year. The goal of the fellowships is to provide *bona fide* research experience to the students, as a potential career alternative.

At Penn the program is coordinated by Dr. Michael Atchison, assistant professor of biochemistry. "We held a competition, students submitted brief research proposals and the committee selected the participants," he said. "All summer long the students worked on their projects in the laboratories of their sponsors. The group met once a week for informal presentations by faculty sponsors.

"At the end of the summer each student gave a brief presentation of the project and submitted a paper describing the research. These papers will be

submitted to the veterinary students' Phi Zeta Day research competition in the spring. Last year three of the winners at this event were former Merck Summer Research Fellows."

The faculty sponsors of the 1992 Merck Summer Research Fellows were Drs. Mark Haskins, Paula Henthorn, Virginia Reef, Phillip Scott, Gail Smith, Dwight Stambolian, Robert Washabau, and John Wolfe.

On July 17, the students visited the Merck facilities in Rahway, New Jersey. Here Merck veterinarians discussed their career paths and described their current positions with the company. The Penn students also met the Merck Summer Research Fellows from Cornell University, Colorado State University and the University of Georgia.

Commencement

The 66 women and 32 men of the 107th class graduated on May 18, 1992. Roger Caras was the Commencement speaker and Dean Andrews, assisted by Assistant Dean Jeffrey A. Wortman, V'69, and Associate Dean Charles D. Newton and Dr. Alan M. Kelly presented the diplomas and performed the Hooding.

Class of 1992

Lillian Ruth Aronson ***
 Stanley Richard Axelrod *
 Jennifer Louise Baez
 Julie Anne Bebak
 Pamela Lynn Bendock ***
 Bradford George Bentz
 Helga Francisca Bleyaert
 Tiffany Bogart
 Brad William Bovee
 Elizebeth Hall Bruce *
 Eugenie Ann Bucher
 Herbert Joseph Burns
 Sarah Marie Bushmeyer **
 Linda Angel Casper **
 Lisa Ann Cawley
 Mary Lou Ciccone
 Gia Anita Croce
 Verena Maria de Cholosky ***
 Cynthia DiBuono **
 Tara Ann Duffy
 Corinne Ann Dunagan
 Dawn Ann Filos
 Dinah Elaine Flack
 Susan Taft Floyd
 Rebecca Lynne Frankeny **
 Douglas Peter Fraser
 Judith Anne Gary
 Jeffrey Hugh Giles
 Mara Elizabeth Guth
 Erin Elizabeth Hannabach ***
 Kathryn Anne Hanson
 Maureen Beradette Hargaden
 Karen Bland Harvey
 Kimberly Anne Henry
 Stephanie Ann Herr
 Patricia Marie Hogan
 Sharon Sudlow Hubby *
 Stephanie Marie Imperatore
 Scott Douglass Johns
 Michelle Denise Kaleta
 Allison Grace Kraiser
 Dara Lee Kraitchman **
 Howard Nelson Krum
 Sharon Patricia Lachette
 Kathy Wilf Liez
 Stefanie Jennifer Spina Lin ***



Gerald Raymond Longworth, Jr.
 Lori Lynn Ludwig ***
 Darlene Anne Lundberg
 Lisa Renee Lusk
 Joanna Terese Manz
 Frank Louis Marco
 David William Matalon
 John Joseph McCauley
 Amy Elisabeth McDowell
 Linda Mary McLaughlin
 John Robert Melniczek
 Caroline Louise Griffith Merchant
 Catherine Elizabeth Micek
 Lowell Tracy Midla
 Mark Christopher Mills
 John Scott Moore *
 Diane Elizabeth Morris
 Clifford Francis Mosson
 Kelly Ann Mullen
 Donald Leroy Neiffer
 Melanie Ann Newman
 Renee Denise Nodine *
 Dorothy Mary Normile
 Carolyn Ayers Paaby
 Elizabeth Ann Paulosky
 Scott Edward Perkins
 Jeffrey R. Pope
 Lorie Davida Portugal
 Robin Pamela Pullen *
 Laura Ann Reed
 Martha Rachael Rodgers
 Dina Anne Rovere
 Helen Margaret Scott
 Amy Ann Shroff
 Marko Robert Sima
 Howard Jonathan Small
 Christopher Patck Smith
 David Scott Spiegel
 Robyn Adriane Schliep Steiner
 Robert Patrick Stephens
 Daniel John Suorsa
 Sheppard Dutton Thorp
 Karen Todd
 Kenneth Edward Turner
 Sandy Maria Vaghetto
 Janice Weiher
 Molly Jean Williams **
 Wade Allen Wisner
 Stephanie Joan Woolwich-Holzman
 Roy Patrick Embudo Yanong
 Theodore Richard Zajac, III
 Hector Jose Zayas

*** Summa Cum Laude
 ** Magna Cum Laude
 * Cum Laude



Award Recipients

Leonard Pearson Prize
 Pamela Lynn Bendock

J.B. Lippincott Prize
 Erin Elizabeth Hannabach

1930 Class Prize in Surgery
 Lori Lynn Ludwig

*Auxiliary to the American
 Veterinary Medical Association
 Prize*

Lillian Ruth Aronson

*Auxiliary to the Pennsylvania
 Veterinary Medical Association
 Prize*

Erin Elizabeth Hannabach

*1956 Class Medal for Achievement
 in Pathology*
 Lori Lynn Ludwig

*James Hazlitt Jones Prize in
 Biochemistry*
 Cynthia DiBuono

*American Animal Hospital
Association Award*
Linda Angel Casper

Merck Awards
Small Animal Award
Sheppard Dutton Thorp
Large Animal Award
Renee Denise Nodine

George M. Palmer Prize
Wade Allen Wisner

Everingham Prize for Cardiology
Robin Pamela Pullen

*E.L. Stubbs Award in Avian
Medicine*
Dinah Elaine Flack

Large Animal Surgery Prize
Rebecca Lynne Frankeny

Large Animal Medicine Prize
Elizabeth Hall Bruce

*Morris L. Ziskind Prize in
Swine Medicine*
Lowell Tracey Midla

*Morris L. Ziskind Prize in
Public Health*
John Scott Moore

Hill's Award for Nutrition
John Robert Melniczek

Phi Zeta Award
Renee Denise Nodine

*Purina Mills Award in
Swine Medicine*
John Joseph McCauley

Upjohn Awards
Small Animal Award
Robin Pamela Pullen

Large Animal Award
Gerald Raymond Longworth, Jr.

*Auxiliary to the Student Chapter of
the American Veterinary Medical
Association Prize*
Sarah Marie Bushmeyer

*Richard A. Ross Award in Field
Service*
Herbert Joseph Burns

*American College of Veterinary
Surgeons*

Small Animal Surgery Prize
Stefanie Jennifer Spina Lin

Large Animal Surgery Prize
Martha Rachael Rodgers





Class of 1937



Class of 1942



Class of 1947



Class of 1952



Class of 1957 and Leslie Fields



Class of 1967



Class of 1982



Class of 1987

In Celebration of Reunion Year Giving

Recently, a tradition of increased donations from alumni in honor of their quinquennial reunions has begun. Although reunion year classes have always made an extra effort to increase their contributions, this trend has been especially evident during the past five years.

Reunion gifts, unlike alumni annual giving contributions, are restricted. They benefit a specific project or purchase a certain piece of equipment. Alumni make reunion gifts outright, or through pledges, over a period of a few years.

In 1987, for their 50th reunion, the Class of 1937 led by class agent Harry F.B. Bartoletti contributed money to renovate the "Class of 1937 Alumni Room" in VHUP. Through Harry's fundraising efforts, and the generosity of his classmates, by Alumni Day in May, 1987, they donated \$23,350!

The Alumni Room is a major asset to the Hospital, providing sleeping accommodations for visiting lecturers and for faculty members who spend long hours at the Hospital and need a place to rest for a few hours. The Alumni Room also helps with the recruitment of new faculty members. The 1937 graduates continue to donate dollars for the maintenance of this room. Over the past five years, an additional \$30,800 was placed in an endowment fund, the interest from which purchases necessary supplies for the room.

For their 50th reunion, the Class of 1939, led by Paul F. Landis, donated \$17,970 to benefit the Connelly Intensive Care Unit at New Bolton Center. Construction of this facility was underway and funding was needed to support various areas within the Unit. On your next visit to NBC, look for the "Class of 1939 Examination Area" in the Connelly Intensive Care Unit.

In 1990, class agents Harold E. Schaden, V'40 and Charles J. Driben, V'65 and their classes raised funds for

a joint reunion gift. The Hospital was in need of a fully equipped computer facility. These classes generously agreed to help the Hospital with this project and donated \$19,860.

In celebration of their 50th reunion, class agent Robert J. Lerch and the Class of 1941 donated \$5,100 in honor of their classmate, Edwin A. Churchill, for his outstanding work in the field of equine medicine. Their contributions helped purchase an anesthesia agent monitor for the Anesthesia Department at New Bolton Center.

In 1991, through the fine leadership of William D. Hardy, Jr. and the generosity of his classmates, the Class of 1966 established a new level of reunion giving. They raised a record \$43,795 in pledges and payments, creating *The Class of 1966 Lecture Fund*. This lecture will rotate between the Penn Annual Conference and the School's Laboratory of Marine Animal Health at Woods Hole, Massachusetts. The Class of 1966 set a precedent for succeeding 25th reunion classes.

This past May, 50 years after graduating, the Class of 1942 and class agent David K. Detweiler, raised \$8,400 in pledges and payments to support the Alumni Annual Giving Fund. An anonymous donor will match gifts up to a total of \$10,000.

While maintaining their average Annual Giving total, class agent Charles W. Koenig, V'57 and his classmates contributed an additional \$4,175 in honor of their 35th reunion. These extra dollars will be used to supplement student scholarship aid. The class will continue to increase its giving efforts for the next two years.

This year, the Class of 1967 convened to celebrate its 25th reunion. In honor of their reunion, members of this class committed themselves to at least match the Class of 1966 record which was set a year earlier. Class Agent Larry Dieter and the reunion committee consisting of Edwin Andrews, James Armstrong, Philip Cook, Robert Goldstein, Darrell Hoffman, Maurice Metcalfe, Jr., James Ramage, and Carolyn Reed helped raise an impressive \$66,124 in pledges and payments to fund a Dean's Scholar. Each scholarship, created by gifts of \$50,000

or more, finances a portion of a student's education with the interest derived from the endowment. These gifts dramatically illustrate our alumni/ae's loyalty to and appreciation for the School. Many alumni from recent reunion classes doubted whether such ambitious goals were realistic. They proved that generosity knows no bounds, that Penn graduates are leaders in giving back as well.

This past year, additional gifts from individuals were made in honor of their reunions. Jules Silver, V'47 donated \$25,000 to create the *Lucy and Jules Silver AQUAVET® Research Fellowship*. Alonzo Edmiston, Jr., V'67 made a gift of \$40,000 to finish funding a Dean's Scholar in his name. Dean Edwin J. Andrews, V'67 will contribute \$25,000, which will equally benefit the Alumni Annual Giving Fund and the *Class of 1967 Dean's Scholar*.

We are grateful to all alumni for their contributions and continued support of the School.



To All Penn Veterinary Alumni

In September, we sent you invitations to alumni receptions at the PVMA Conference in Lancaster, PA on Saturday, October 24th and at the AAEP Conference in Orlando, FL on Monday, November 30th.

Due to a printing error, past-President Jack Bregman, V'66 was incorrectly listed as the President of the Veterinary Medical Alumni Society. Please note that Daniel D. Bleicher, V'53 is the current President. Sorry for any confusion.

The Alumni Relations Office

Alumni Day

Roughly 170 alumni attended Alumni Day in Philadelphia on May 16th. The schedule of events began with the traditional Veterinary Medical Alumni Society annual meeting, including the presentation of the Alumni Awards of Merit. Dr. Jack Bregman, V'66, passed the gavel for the office of President to Dr. Daniel Bleicher, V'53, and introduced the 1992-1993 VMAS Executive Board (listed below). The meeting was followed by a luncheon and either a walking tour of Society Hill, a tour to the NJ State Aquarium at Camden, or a tour through VHUP. The day concluded with an alumni dinner/dance at the Philadelphia Hilton and Towers.



Alumni children are entertained by a clown at Alumni Day.



Carsten Henkel, V'95 and Desiree Thomas, V'95, student volunteers at the Wildlife Service, talk with Jules Silver, V'47.



Karen Harvey, V'92, Dina Rovere, V'92 and Roy Yanong, V'92 (l to r) present their class flag to VMAS President, Dr. Daniel Bleicher, V'53.

Alumni Awards of Merit

The Veterinary Medical Alumni Society of the University of Pennsylvania School of Veterinary Medicine presented the Alumni Award of Merit to six distinguished alumni on Alumni Day on May 16 in Philadelphia. Honored were: **Dr. Harry F.B. Bartoletti, V'37**, a retired veterinarian from Freehold, NJ; **Dr. Alonzo Edminston, V'67**, a small animal practitioner in La Mesa, CA; **Dr. Charles W. Koenig, V'57**, a small animal practitioner in Limerick, PA; **Dr. Melvin M. Rabstein, V'37**, retired and residing in Long Boat Key, FL; **Dr. Victor T. Rendano, V'72**, associate professor at the New York State College of Veterinary Medicine, Cornell University; and **Dr. Jules Silver, V'47**, of Niantic, CT and Boca Raton, FL.

The Society also honored **Charles S. Wolf**, chairman emeritus of the School's Board of Overseers, and presented him with the Honorary Alumni Award of Merit to become the second non-veterinarian honorary alumnus.



Dr. Jack Bregman, Mrs. Silver, Dr. Silver, Dr. Michael P. Ratner and Dr. Daniel D. Bleicher.



Dr. Bregman, Mrs. Koenig, Dr. Koenig, Dr. Ratner and Dr. Bleicher.



Dean Edwin J. Andrews and Dr. Daniel D. Bleicher, president of the Veterinary Medical Alumni Society presenting the Honorary Alumni Award of Merit to Mr. Charles S. Wolf, chairman emeritus of the School's Board of Overseers.



Dr. Bregman, Dr. Bartoletti, Dr. Ratner, Mrs. Bartoletti and Dr. Bleicher.



Dr. Bregman, Dr. Rendano, Dr. Ratner and Dr. Bleicher.



VMAS President, Dr. Daniel Bleicher, V'53 (right) and Dr. Michael Ratner, V'59 present a plaque to Past-President, Dr. Jack Bregman, V'66 in recognition of his role as VMAS President.

Veterinary Medical Alumni Society Board 1992-1993

Officers

- Dr. Daniel D. Bleicher, V'53, President
Dr. George L. Hartenstein IV, V'68, President-Elect & Vice Chair, Liaison Committee
Dr. Jack Bregman, V'66, Past-President; Chair, Awards & Nominating Committee

Members-at-Large

- Dr. Charles N. Bell, V'70, Benjamin Franklin Society Chair & Phonathon Co-Chair
Dr. Pierre A. Conti, V'60, Class Agent Co-Chair
Dr. Richard D. Derstine, V'57
Dr. Diane R. Eigner, V'80, Benjamin Franklin Society Chair & Phonathon Co-Chair
Dr. John R.S. Fisher, V'61, Annual Giving Co-Chair & Phonathon Co-Chair
Dr. Bryan S. Johnson, V'63
Dr. Seth A. Koch, Class Agent Co-Chair
Dr. Edgar R. Marookian, V'54
Dr. Sidney L. Mellman, V'49
Dr. Pat A. Picone, V'78, Annual Giving Co-Chair & Phonathon Co-Chair
Dr. Joseph D. Slick, V'53, Chair, Pennsylvania Veterinary Medical Historical Society
Dr. James V. Stewart, V'68
Dr. Stephen W. Syken, V'86
Dr. Ellsworth B. Thorndike, Jr., V'64, Class Agent Co-Chair

Other Board Members

- Dr. M. Josephine Deubler, V'38, Historian
Dr. Peter J. Felsburg, V'69, Faculty Representative, VHUP
Dr. Charles Benson, Faculty Representative, NBC
Dr. Kathy M. Mockler, V'90, Pacesetter Representative
Dr. Michael Moyer, V'90, Pacesetter Representative

Student Representatives

- Meg Sleeper, V'93, Class President
Steven Cudia, V'94, Class President
Steve Suter, V'95, Class President
Patricia Khuly, V'95, Student Government President

Ex-Officio Members

- Dr. Edwin J. Andrews, V'67, Dean
Nancy Martino, Director of Alumni Affairs
Dr. Jeffrey Ott, P.V.M.A. President
Dr. Martha O'Rourke, D.V.M., New Jersey VMA President
Dr. William Wade, D.V.M., Delaware VMA President

1992 Alumni Liaison Committee

Members of the 1992 Alumni Liaison Committee had a productive two-day visit to the School on March 17th and 18th meeting with students, faculty representatives, and interns and residents on both campuses. The purpose of this annual meeting, which includes a different contingent of alumni each year, is to produce a balanced report to alumni, faculty, staff, and students concerning the School's strengths and weaknesses.

We wish to thank the following alumni who served on the 1992 Alumni Liaison Committee:

- Daniel D. Bleicher, V'53, Chairman
Jack Bregman, V'66
Diane R. Eigner, V'80
Edgar M. Fox, V'81
Midge Leitch, V'73
Edgar R. Marookian, V'54
Michael Moyer, V'90
Carol D. Swandby, V'84
Stephen W. Syken, V'86
D. Robert Vallance, V'70
Albert L. Wagner, Jr., V'51

Apologies go to Drs. Syken, Vallance, and Wagner, whose names were inadvertently omitted from the list of committee members in the Liaison Committee report.



Continuing Education

Dec. 12 and Dec. 13
Intensive Hands-on Small Animal Dental Continuing Education Programs Canine Periodontics

Jan 20 and Jan. 21
1993 Penn Annual Conference, Adam's Mark Hotel

Jan. 27
Surgical Treatment of Ear Disease in Dogs
Feb. 10
Reconstructive Stifle Surgery Laboratory

Feb. 24
Small Animal Medical Problems

Mar. 6, and Mar. 11
Intensive Hands-on Small Animal Dental Continuing Education Programs.

Mar. 14
Critical Care

Scholarships

The New Jersey Veterinary Education Foundation awarded scholarships to **Jay Jasan, V'93**, and **June Hacker, V'95**. Jay Jasan also received the Richard Dorr, Jr. Scholarship. The other recipient of this scholarship is **Christopher Hill, V'93**. The Clark Foundation awarded a scholarship to **Joshua Hasbrouck Clay, V'95**.

Lance Bassage, V'93, is the recipient of the Westminster Kennel Foundation Scholarship. Three students received scholarships from the American Kennel Club. They are: **Christopher Hunsinger, V'94**, **Michele Trammell, V'93**, and **Gillian Ruth Gibson, V'94**. Ms. Gibson also received a scholarship from the Union County Kennel Club.

Debra Buchanan, V'95, received a scholarship from the Trushel Scholarship Trust. **John Price, V'94**, is the recipient of the first Clifford F. Wright, Jr. Scholarship. **David M. Rutledge, V'93**, is the recipient of the David I. and Victoria R. Greenberg Memorial Scholarship. **Mark Hanlon, V'93**, has been awarded the Israel and Anna Live Scholarship. **Jill L. Stetz, V'94**, received a scholarship from the Grand Chapter of Pennsylvania Order of the Eastern Star. **Maureen Firth, V'93**, received a scholarship from the Maine Department of Agriculture, Food and Rural Resources.

The Burlington County Kennel Club awarded a scholarship to **Deborah Mandell, V'93**. The Lancaster Kennel Club, Inc. awarded three scholarships, the recipients are: **Nancy J. Brady, V'95**, **Lisa A. Ruth, V'94**, and **Betsy C. Squires, V'93**. **Lauren P. Flato, V'93**, is the recipient of the Amlan Foundation scholarship. **Joseph Vito, V'93**, has been awarded the New York Farmers Scholarship.

Megan Hilf, V'94, received a scholarship from the Cairn Terrier Club of America for her work on culturing canine cartilage cells to investigate the pathogenesis of inherited metabolic disease and approaches to testing in vitro therapy using gene transfer.

Dean's Scholarships

Lara Chavin, V'95, has received the Henry S. McNeil, Jr. Dean's Scholarship. Three dean's scholarships were established by the Estate of J. Maxwell Moran, Sr. The recipients of the J. Maxwell Moran, Sr. Dean's Scholarships are: **Krista Price, V'95**, **Laureen Smith, V'93**, and **Deborah Mandell, V'93**.

The recipients of the Charles S. and Phyllis F. Wolf Dean's Scholarships are: **Joshua Clay, V'95** and **Judith A. Surdam, V'94**. **Michele A. Trammell, V'93**, has received the Anne Linn White Dean's Scholarship.

Bryan Cherry, V'96, received the Hill's Pet Products Dean's Scholarship. The Jack Mara/Hill's Pet Products Dean's Scholarship was awarded to **Lisa J. Saravis, V'94**. **Svea K. Wahlstrom, V'94**, is the recipient of the Mrs. Jack L. Billhardt Dean's Scholarship. The Bruce J. Heim Dean's Scholarship was awarded to **Amy L. Dowd, V'93**.

Newly Established Foundation Supports the Vet School

Mr. and Mrs. John A. McCrane, clients of New Bolton Center and the Small Animal Hospital, established a private foundation earlier this year to support animal welfare, the arts, family and children's services, and conservation. The School of Veterinary Medicine is among the first beneficiaries of the McCrane Foundation's largesse.

In October the McCrane Foundation made two gifts to the School of Veterinary Medicine. One grant for \$15,000 will purchase a cardiac output computer for the Intensive Care Unit at VHUP. Although this piece of equipment is routinely used in human medicine to measure cardiovascular status, only one other veterinary hospital uses a cardiac output computer for clinical patients, and only on occasion. VHUP's will be used routinely several times a week.

The second grant for \$20,000 will purchase specialized video equipment for the high speed treadmill at New Bolton Center. It will be used to standardize looking at ways both lame and sound horses travel while in motion and for a broad spectrum of other projects in Equine Sports Medicine.



Dean Edwin J. Andrews and Dr. Harry Rozmiarek, director of ULAR, cut the ribbon to the new University Laboratory Animal Resources facility on the second floor of the Veterinary Quadrangle Building.

The facility includes a sterile two-operating-room suite equipped with vacuum and central oxygen; kennel rooms with 23 runs with automatic feeders and waterers; a treatment room, quarantine space, and two rooms for cats. The facility exceeds federal requirements for animal housing and is part of the University's program to upgrade all animal care and use facilities on campus.

The renovations were funded by grants from the University Research Development Fund and the National Institutes of Health.

Memorials

The University of Pennsylvania School of Veterinary Medicine, the Veterinary Hospital and New Bolton Center gratefully acknowledge gifts in memory of special friends. Recent memorials include:

In Memory of Mrs. Averell Penn Smith Walker (Mrs. Joseph A.)

Dorothy S. Armstrong
Katherine D. Van Pelt Beaver
Mrs. N. H. Biddle
Mr. and Mrs. Harry P. Bingham, Jr.
The Frances and Townsend Burden Foundation
Alice S. Carter
Mr. and Mrs. W. Burling Cocks
Sallie Joy Cully
Mrs. E. Detchon, Jr.
Mrs. Morris H. Dixon
Malcolm J. Edgerton, Jr.
Mary Fisk
Mrs. Elizabeth H. Fleitas
Mrs. Hope Y. Hanes
Catherine Larmore
John B. Leake
Mr. and Mrs. Colin M. Lofting
Frank L. Mansell
Mrs. Stanley G. Mortimer
Mr. and Mrs. Hugh J. O'Donovan
Mary F.S. Remer
Republican Committee of Chester County
Dr. Monica Reynolds
Donald J. Rosato, M.D.
Mr. and Mrs. Charles C. Rumsey
Mr. and Mrs. Edgar Scott
Edgar Scott, Jr.
Ralph G. Smith III
Bruner H. Strawbridge
Margaret Dorrance Strawbridge
Foundation of Pennsylvania II, Inc.
Angela and Glen T. Urquhart
Charles B. VanPelt
Patsy Wilmording
Mr. and Mrs. George F. Wintersteen

In Memory of Mrs. Catherine ("C.C.") Crane Welling

Mrs. Welling had a love of, and interest in, all animals. She was particularly concerned with the rapid spread of cancer in Golden Retrievers.

Gifts from the following donors, in addition to a bequest from Mrs. Welling, will purchase much needed computer equipment for the Oncology Department in the Small Animal Hospital.

Garden State Golden Retriever Club, Inc.

Mary Scott Kirkpatrick
Lenape Golden Retriever Club, Inc.
Mr. and Mrs. William Martin, Jr.
Dr. David McAdoo
Anne and Herman Plusch
Mr. and Mrs. Karl R. Schoettle, Jr.
Edgar Scott, Jr.
Joseph A. and Elizabeth A. Scott
Winifred G. Strickland
William M. and Flora L. Trego
March K. Walsh
Mrs. Proctor Wetherill

W. Edward McGough Scholarship Fund

In Bellwether 32 we listed the contributors to the W. Edward McGough Scholarship Fund. Unfortunately, Dr. Guiseppe Bennelli (deceased) and Mr. Walter F. Goodman were omitted from the list. Mr. Goodman's contribution was in memory of James E. Clark and Elsie (Mrs. Stewart) Simmons. We apologize for the omission.

Since then further donations to the fund have been received from:

Miss Eugenia Bishop
K. Carol Carlson
Friends of Donald J. Massaker
Tom Natalini

in memory of Donald J. Massaker
Frank T. Sabella
Bruce R. Schwartz
Mr. and Mrs. Harry J. Schwartz

The donations bring the fund more than three fifth toward the goal of \$50,000.



Dr. Donald A. Abt, Robert R. Marshak Term Professor of Aquatic Animal Medicine and Pathology, accepts the MSD AgVet Award for Creativity from Dr. Janice L. Nichol, Field Technical Services, MSD AgVet. The goal of the awards program, established in 1991, is to motivate risk taking in the implementation of innovative approaches to veterinary medical education. Dr. Abt received the award for his leadership in the AQUAVET® program.

Bellwether 33

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