Fish Farming in Barn and Pond

The cowbarn on the Philadelphia campus is once again occupied and Harnwell Pond at New Bolton Center is no longer placid. Both have a new purpose as sites for raising hybrid striped bass. The old, large room in the School's courtyard wing and the farm pond at New Bolton are vital components of a living laboratory that explores the raising of fish for market.

In 1997 the School received a grant from Delaware River Port Authority to study the feasibility of a state-of-the-art aquaculture facility at the Philadelphia Navy Yard to utilize existing buildings and to bring jobs to the area. Dr. Leon Weiss, the project director, formed a multi disciplinary team with members from the

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From the Dean

These are among the best of times for biomedical research with strong support from public and private sectors and a robust economy. The molecular biology revolution is profoundly advancing our understanding of disease in humans and animals and is spawning new directions for the pharmaceutical industry. This has not gone unnoticed by lawmakers on Capitol Hill who are persuaded that biomedical research is perched on the threshold of a new era that will transform the practice of medicine and veterinary medicine in the next decade. The Republican majority in the House after stating that they would slash research spending to balance the budget when they initially came into power, now see the molecular biology revolution as an engine of economic growth. As a result, the Legislature has approved a remarkable 15 percent increase in the budget for the National Institutes of Health with the goal of doubling the NIH budget to $27 billion in the next five years. This translates into improved research funding, especially for basic research.

One of the distinctive qualities of the School is its strength in basic research. Three other veterinary schools can match us in this regard. Hence, the increase in NIH funding appeared potentially meaningful to me but I did not anticipate just how meaningful it would be. In the last academic year, FY'98, NIH funding for competitive research grants at the School increased by an astonishing 38 percent compared to the previous year. And, just when I thought this growth could not be sustained, it appears to have increased by a further 40 percent in the first quarter of the present academic year. This is an extraordinary achievement by the faculty and we should take great pride in the fact that the rise far exceeds the proportionate increase in the NIH budget.

The present success says a great deal about the intellectual vigor of the School and augurs well for our long term objectives of developing new, multi-disciplinary programs in genetics, comparative oncology, germ cell biology and infectious disease research.

Alan M. Kelly
The Gilbert S. Kahn Dean of Veterinary Medicine

Dr. Raker Honored

At the recent AEEP meeting the School honored Dr. Charles Raker, V'42, Lawrence Baker Sheppard Emeritus Professor of Surgery, by presenting him the School's Bellwether Medal. Following is the citation.

CHARLES W. RAKER, V.M.D.

Charles Raker, a Penn undergraduate entering the School of Veterinary Medicine in 1938, graduating with high honors in 1942, you were chosen as valedictorian of a class that boasted many luminaries.

In 1948 you became Assistant Professor of Medicine & Director of Clinics, Bolton Farm, Bucks County, and you moved to South Brook Farm, New Bolton Center, in 1952 with the School's field operations.

You made your mark quickly and in 1954, Dean Mark Allan appointed you to be Director of Large Animal Clinics & Chair, Dept. of Surgery in Philadelphia. You took over an elite referred service in the Old Quad with its circus like atmosphere of trucks, trailers, vans, unloading horses, cows, and swine, grounds, stables, students exercising dogs and horses, all circulating around sudden fecal field. Herically, you transformed this equine service into one that attracted the very best quality horses from throughout the county and the waiting list for elective surgery grew alarmingly.

Due to your burgeoning reputation, private support came to the School and in 1964 the service moved to New Bolton Center and facilities that more appropriately matched your skills. You went on to make this the world's leading clinic for equine surgical care.

Over the years you received much recognition as a renowned veterinarian, teacher, visionary, colleague and friend of the School. The Norden Teaching Award was bestowed in 1965 and in 1967 you were selected to receive the endowed chair in the School, the Lawrence Baker Sheppard Professor of Surgery. In 1967 you became the Pennsylvania Veterinary Medical Association's, Veterinarian of the Year. As a founding member of the American College of Veterinary Surgeons you were its distinguished President in 1975.

In 1985, after 35 years you retired from the faculty but actively continued to advance equine programs at New Bolton Center.

Charlie Raker you have had an extraordinary distinguished career. Your most outstanding quality and the one that transcends your other prodigious talents is your wondrous humanity and compassion. You are totally dedicated to helping others and to fostering young careers. You prepared a host of interns and residents to be outstanding equine surgeons and they are all indelibly stamped with the rare qualities you represent. An expression of your immense stature and clearly demonstrating that you were a man ahead of your time, one of your first interns was a woman. An astonishing number of successful equine surgeons today owe their careers to you and they are proud to acknowledge your role. And even now, 60 years after you first came to the School, you continue to foster young careers, leading the highly successful Opportunity Scholarship Program for students at the School.

Charles Raker, V.M.D., you are an inspiration to all those whose lives you have touched and the School is proud to present you with the Bellwether Medal for Distinguished Leadership.

December 6, 1998
New Laboratories Dedicated

The School dedicated two new laboratories in the Myrin Building at New Bolton Center on October 29, 1998. The Margaret McGrath Rockefeller Laboratories in Animal Reproduction and the The Marion Dilley and David George Jones Laboratories in Animal Reproduction are major components of the School's Center for Animal Transgenesis and Germ Cell Research.

The dedication was attended by the University's Board of Trustees and by members of the late Mrs. Rockefeller's team who, along with her, came to New Bolton many years ago to learn about bovine reproduction.

The Rockefeller Laboratories, named after the late Margaret Rockefeller, will concentrate on germ cell biology and animal transgenesis. The work will incorporate basic science and clinical approaches and will involve the Section of Reproduction. Mrs. Rockefeller, a breeder of Simmental cattle, spent many hours at New Bolton Center to increase her understanding of animal reproduction and genetics. She was generous in sharing her experience and knowledge, and once organized a basic animal husbandry course for cattle breeders.

The Jones Laboratories will focus on the basic science aspects of germ cell research. The late David George Jones, a 1924 graduate of the Wharton School, maintained dairy cattle on two farms in Marlton, NJ. He was particularly interested in research that led to better reproductive health of food producing animals. The new laboratories will continue and foster this intent of David George Jones at both the basic science and applied level.

The Center for Animal Transgenesis and Germ Cell Research was established to capitalize on the more than 30 years of pioneering research in the development of transgenic techniques by scientists at the School of Veterinary Medicine. One of the goals of the Center is the development of new approaches for producing transgenic farm animals and understanding germ cell biology.

Current research at the Center focuses on several aspects of germ cell biology. These include studies on genetic regulation of the earliest events that identify cells destined to produce sperm or eggs. In addition, modifications that preprogram the genes in sperm and eggs are being investigated. A major initiative of the Center will be to culture and transplant spermatogonial stem cells, which are responsible for generating spermatozoa. These approaches will generate a more comprehensive understanding of farm animal reproduction, as well as provide the framework to develop new methods for introducing beneficial genes into farm animals to enhance their health and productivity.

Funds for the construction of the two laboratories were provided by the Estate of Margaret McGrath Rockefeller, the Estate of David George Jones, and the Commonwealth and General Assembly of Pennsylvania.

Mr. Don Homer displays "Peggy's stitches" during the ceremony. Mr. Homer, part of the team that accompanied Mrs. Rockefeller to New Bolton many years ago, explained that clinicians at NBC taught them about bovine reproduction and about Caesarian sections as their farm was on an island and veterinary help was hours away. These stitches were made during surgery practice sessions.

Ms. Patricia Kling, representative of the Jones Trust, and Dean Kelly after unveiling the plaque.

Dr. Ray Vogelos, chair of the University's Board of Trustees during the ceremony. On the podium Dr. Ralph Brinster, principal clinical investigator of the Center for Animal Transgenesis and Germ Cell Research and Dr. Michael Klotzoff, director of the Center.
Fish Farming in Barn and Pond

(continued from cover)

School of Engineering, the Wharton School, the Department of Environmental Studies as well as members of the School's faculty. Dr. David Nunamaker oversees the project at New Bolton Center. He is aided by Dr. Eric Birks, a physiologist, and members of the Center for Animal Health and Productivity. Dr. Hamish Rodger, an aquaculture specialist skilled in diagnostic pathology from the Institute of Aquaculture, University of Stirling, Scotland has joined the group, overseeing closed system fish farming and contributing to aquaculture activities at both Philadelphia and New Bolton campuses.

The cowbarn and Harnwell Pond are important as both are existing "spaces" that, with slight modifications, provide an environment needed for raising fish, albeit through two different methods. The barn, a large room in an older, existing, urban building serves as a model for similar spaces in old manufacturing plants, empty warehouses and spaces such as those at the Navy Yard that could be converted to fish farming. The pond is similar to many of those located on farms in Pennsylvania.

Harnwell Pond was "renovated" by dredging and enlarging, the addition of a sediment basin to prevent silting, and inflow and outflow pipes. The pond, part of New Bolton Center's storm water management, is now 8 ft deep throughout and covers about two acres. Its renovation was completed in October 97 and by winter the pond had filled. Geese were discouraged by the "dog method." Dr. Nunamaker's Chesapeake Bay retriever harassed the birds so much that they fled to another pond.

Geese and fish farming are not compatible because of the soiling of water and surrounding ground by the birds.

While work on the pond progressed, construction in Philadelphia commenced. New reinforced flooring was poured to bear the weight of heavy water tanks. A maze of water and drainage pipes was installed as were heavy-duty electrical services. To work on pumps and to change settings on equipment, a raised steel floor was built so that engineers can continually fine-tune the equipment for the closed circulation system. Two 2,400 gallon tanks, each with its own recycling system, were installed as were three 180 gallon tanks hooked up to a common recycling system. There is also a 1,600 gallon water holding tank where city water is stored while the chlorine vents out. Other equipment includes pumps and filtration systems as well as an array of measuring devices.

The equipment in Harnwell Pond isn't quite as complicated. Here students, under the direction of Dr. Nunamaker, built floating docks and five large fish cages, four feet high and four feet in diameter, out of one inch plastic well pipe and heavy-duty ½ inch plastic mesh. An aerator was installed to provide a continuous current and three pounds of oxygen per hour. It keeps the area from freezing during the winter and keeps the water cooler during the summer. By late spring the pond was ready for fish. The population selected was a bass cross, an established, reliable strain that can tolerate warmer water, is disease resistant, grows fairly uniformly and is adaptable to various environmental conditions.

The fish were purchased in different sizes: as 1-2.5 inch fingerlings, as 3-10 inch fish and as 400 g fish. They were put in the cages. Dr. Nunamaker and his group found that the highest mortality rate occurred among the larger fish. 25 of the 100 ten-inch fish died primarily due to trauma inflicted by the other fish, so the remaining 75 were released into the pond. The fingerlings were distributed in the cages in various densities and it was found that in a group of 300 to a cage 25 died. The group also found that when the fingerlings were at 150 per cage the mortality was lower and the growth rate was the same as that of fish in the pond. Density influences weight gain and it is advantageous to have lesser density of fish in a cage. The lower densities had the greatest varieties in size.

For bass the industry is looking for fish of about 1½ to 1½ lb, in weight at the time of harvest. To achieve this in pond grown fish, a farmer must invest about 1½ years in 2.5 inch fingerlings are set out. These are about five months old. From egg to market weight it takes a pond-raised fish two years.

These fish require attention, just like any other food animal. They are fed twice a day with a high-quality, fish-based diet. Bass are carnivorous and need certain fish oils in their food to thrive. Researchers at the Center for Animal Health and Productivity are working on a plant-based fish food that would be suitable and less expensive.

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Fish Farming in Barn and Pond

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...ive for farm raised carnivorous fish. In addition to feeding the fish, the water quality must be checked frequently for: pH values, dissolved oxygen, alkalinity, nitrogen content and temperature. These need to meet specific parameters for the fish to grow.

Dr. Nunamaker explained that triploid carp were released into the pond to control algae growth. He said that prey birds were not a problem because the cages have lids and sit below the surface.

The closed circulation tanks in Philadelphia pose a different set of problems. Here the fish are in an artificial, totally controlled environment. Worries are water quality and the management of waste products. Dr. Hamish Rodger directs the fish farming project in town. He explained that 2,000 striped bass of the same variety as at New Bolton were put in one of the large tanks in December. The fish were fingerlings, about 3 inches in length. They are fed salmon fish food using clockwork belt feeders.

The water is kept clean through a biofiltering system where the water trickles over a plastic bed that is lined with bacteria. These metabolize wastes and ammonia. The group is also testing a "bubble bead filter" which combines mechanical and biofiltration. Liquid oxygen is added to the water and aerators are employed. The tanks are equipped with automatic probes for daily checking of levels of oxygen, pH, temperature and redox potential. Nitrite and ammonia are tested daily. Alkalinity and nitrate levels are tested every other day.

Waste is collected in traps that are cleaned frequently. Each day about 10% of the water in a tank is drained and replaced with de-chlorinated city water. The water temperature is about 70-75°F without any direct heat. The many pumps and other equipment in the room provide quite a bit of warmth, enough to keep the water at those temperatures even though it is much cooler outside.

Dr. Rodger said that heat pumps may be installed to more precisely control room and water temperatures.

He explained that closed system fish farming is not that profitable right now because of the high overhead costs for equipment, water, electricity and labor. The goal of the project at Penn is to fine-tune and modify existing equipment to make it more efficient and less costly to operate, keeping morbidity and mortality among the fish to a minimum. To that end the researchers hope to develop DNA probes for specific pathogens that affect bass and tilapia. The pathogens, primarily bacteria and parasites, can adversely affect production. The long term goal is to raise fish free of specific pathogens and to market the eggs or progeny of these.

Because these fish are raised in a controlled environment under optimal conditions their rate of maturation is accelerated. Tank raised bass grow to market weight in one year, from egg to 1½ lbs. That is half the time of pond fish, but the cost of raising on a daily basis is higher. Currently only bass are raised but Dr. Rodger hopes to add tilapia early in 1999. The group is also looking at the feasibility of raising shrimp in tanks. Plans are also in hand to add more tanks.

The fish farming project at the School is now up and running. In addition to the participation of the School of Engineering, the Wharton School will provide help with cost analysis and marketing studies. Penn's Department of Environmental Studies is also involved to consult on water and environmental issues.

Within the School the project has generated quite a bit of interest among students who now can have hands-on experience in pond farming and in closed system fish farming. Elective courses in aquaculture are offered for third-year students during the spring. The School also offers the Aquavet program each May at the Marine Biological Laboratory, Woods Hole, MA open on an internationally competitive basis.

Will such fish farming be economically feasible? The studies at New Bolton Center and in Philadelphia should tell. One thing the researchers do know, compared to chicken, fish are more efficient in converting feed into market weight. It takes a 0.97 lbs. of fish food to yield one pound of fish. Theoretically a farmer could raise 4,000 fish per acre of pond and could earn between $6,000- $10,000 if all goes well. If the cost of closed system fish farming can be brought down, a producer then could look at a similar profit.

For this to happen, processing needs to be in place, a transportation system from farm to processing plant needs to be developed as well as a system to transport live fish to specialty markets. All this is in the future, awaiting the answers from the research and farming efforts by Penn's multi disciplinary group. Hopefully they will have answers that lead to extra income for Pennsylvania farmers and create a new industry in empty buildings throughout the city and the Navy Yard.
An Evening in Old Saratoga

The August 8, 1998 Gala, An Evening in Old Saratoga, raised $100,000 for the School’s New Bolton Center. The event, organized by A Weekend in Old Saratoga, was attended by more than 300 people and was held at the Gideon Putnam Hotel in Saratoga Springs, NY.

Shown here during the check presentation in November by members of the organization’s board of directors are (l to r) Mrs. John R. Landan, Jr. (secretary), Mr. John R. Landan, Jr. (president), Mrs. Beverly Enser (chairman), Mr. Gilbert V. H. Sheck (vice president), Mr. Charles McWilliams (treasurer), Dr. Kelly, Dr. Birks, Dr. Nunamaker, Mrs. Charles McWilliams (board member).

The funds will be directed toward the purchase of equipment for the new Exercise Physiology Laboratory at New Bolton Center. Some of the equipment will be mobile as balances, PH meters, centrifuges, etc. which can be used in Dr. Erik Birks’ current studies on blood flow in the horse. A part of the equipment will be fixed casework for the new laboratory being constructed for exercise physiology studies and include such items as an autoclave, water purification system, hood, etc. This laboratory will be part of the Imaging/Heart Station Building on which it is hoped construction will start in two years. Dr. Birks’ research on blood flow plays a critical element in common diseases which affect the horse, such as colic, laminitis, and EIPH (Exercise Induced Pulmonary Hemorrhage).

During the six years that A Weekend in Old Saratoga has held annual galas to benefit New Bolton Center, the organization has raised more than $600,000 for the Equine Sports Medicine Program’s capital projects and equipment purchases. In addition to the Gala and silent auction at the Gideon Putnam Hotel, there are carriage outings to Polo and the Saratoga Racecourse where a New Bolton Center Race is run in honor of a horse with special ties to the Center.

The 1998 honoree was Sky Beauty, a mare owned by Mrs. Philip B. Hofmann. Sky Beauty earned $1,336,000 in her five-year racing career including wins in the Alabama, the Acorn, the Oaks and the Mother Goose. New Bolton Center veterinarian Dr. Loren Evans looked after Sky Beauty many times.

A Weekend in Old Saratoga is dedicated to the advancement of coaching and pleasure driving in America. 1998 was the 17th year the group has organized and hosted a benefit during the racing weeks in Saratoga. The 1999 edition of A Weekend in Old Saratoga will be held August 4 to 7, with the Gala, An Evening in Old Saratoga, on Saturday, August 7.
Dr. Deubler Honored by University

Dr. Josephine Deubler, V'38, received the Alumni Award of Merit, the highest award presented by the University of Pennsylvania Alumni Society on October 30. The award is given in recognition of outstanding service to the University of Pennsylvania. It was presented to Dr. Deubler and six other Penn alumni during a Gala entitled "Celebrating Leadership Luminaries" at Wanamaker's Tea Room, Norman P. Hetrick, University Trustee and member of the School's Board of Overseers, presented the award after Maury Povitch introduced Dr. Deubler. The citation follows:

Inspired by five family members who were veterinarians, all male, you set out to leap the hurdles that society had created for women and that nature had created for you when you became profoundly deaf in early childhood. Staying the course and overcoming all obstacles, not least of all loneliness, you emerged as the first woman to graduate from Penn's School of Veterinary Medicine.

Spurred on by this achievement, you went on to earn a Master's and Ph.D. from Penn and became the first female to be admitted to the Pennsylvania Veterinary Medical Association. Joining the School of Veterinary Medicine faculty, where you are now an Emeritus Professor, you began 53 years of research on diseases afflicting populations largely equine, feline, and bovine. But it was clear that your heart belonged to the canines as you gained international renown as a breeder, exhibitor, and judge of dogs—eventually judging Best in Show at Westminster. You remain, after 25 years, Show Chairman of both the Montgomery County Kennel Club and the Bucks County Kennel Club.

In addition to your volunteer work for the Animal Rescue League of Philadelphia and the Bucks-Montgomery Veterinary Medical Association, you have served Penn and your profession as the School's class agent, as Secretary and Historian of the Veterinary Medical Alumni Society, by writing for the magazines Bellwether and Popular Dogs, and by establishing Penn's popular Canine Symposium and Feline Symposium. The School receives countless gifts in your name, including the fully endowed Dr. M. Josephine Deubler Dean's Scholarships and contributions to The Josephine Deubler Genetic Disease Testing Laboratory.

A true winner, you have earned every award in the dog fancy, including the Mark L. Morris Sr. Lifetime Achievement Award for Contribution to the Health and Well-Being of Dogs, and three of the School of Veterinary Medicine's top honors — the Bellwether Medal, the Veterinary Medicine Alumni Award, and the Centennial Medal. If there were a Best in Show for veterinarians, you would surely have won that, too. We now proudly bestow on you, Dr. Josephine Deubler, our own Red and Blue Ribbon, the University of Pennsylvania Alumni Award of Merit.

Student Summer Research Program

The School encourages students to consider research as a career option and has in place a summer research program to expose them to bench research. The level of interest among students was high as 21 applied for a place in the 1998 Student Summer Research Program, the largest number ever. From these 16 students were selected, again a record number. The program, revitalized in 1990 with support from the Merck Foundation, exposes veterinary students to all aspects of biomedical research. Students submit a research proposal and once accepted into the program, perform biomedical research during June, July, and August. They are required to write the results of the research in the form of a scientific paper, and orally present the findings to others.

Each year different faculty volunteer as mentors and the students perform research in their laboratories under their guidance. Students participate in weekly seminars and give an oral presentation of their work to the seminar group. In September each had to hand in a report in the form of a scientific paper. This will also be submitted in March 1999 for the School of Veterinary Medicine Phi Zeta Day. A large number of students are still working with their mentors and performing additional studies. Many are planning to submit their studies for publication.

The 1998 group of students worked with mentors in the Departments of Clinical Studies at Philadelphia and New Bolton Center, the Department of Animal Biology, the Department of Pathobiology as well as with researchers at the School of Medicine, Children's Hospital and the VA Hospital in Philadelphia.

In addition to the Merck Foundation, the NIH provided funding for the 1998 program, as did the Office of the Dean and the School's Mari Lowe Center for Oncology.
Notes From Mongolia
by Amanda Fine, V'97

I am based in Ulaanbaatar, Mongolia’s capital. Ulaanbaatar is a bustling city of close to 1 million people (more than 1/3 of the country’s population). Many people in the city still wear traditional Mongolian dress and it is not uncommon to see a horse cart in a line of traffic or cows grazing in the City Square. For the most part, however, Ulaanbaatar is a modern city with movie theaters, universities, banks, hotels and even a pizza place that delivers!

My work with the Veterinary Research Institute has taken me out of the city on a number of occasions. Traveling just 40 km beyond Ulaanbaatar’s city limits takes you to another world. Talking and sharing a meal with Mongolian livestock herders in their traditional felt tents called gers, it is not hard to imagine what life on the Mongolian steppe was like in the days of Genghis Khan. With the exception of a Russian motorcycle, a few family photographs taken in the “big city”, a battery-powered radio and a poster of Michael Jackson or Sylvester Stallone (American culture has invaded even the remotest lands) there is usually little evidence of the 20th century in a Mongolian ger. People are friendly and extremely hospitable. There is no need to knock when visiting a Mongolian family in their ger. You simply push open the door, take a seat on the floor (foreigners and honored guests are usually handed a stool) and before you have time to fully introduce yourself you are being served salted milk tea with fried bread and dried cheese curd—traditional Mongolian cuisine. A meal of mutton usually follows.

Needless to say, the last few months have been an adventure and I am looking forward to the months to come despite the fact that the average temperature during most of those months will be somewhere between —20 and —30 degrees Celsius. I plan to “escape” sometime in February or March to visit some of my fellow Luce Scholars that have been assigned to more tropical placements. Since plans to join my family in the Middle East for the holidays fell through, I will be in Ulaanbaatar for Christmas and the New Year. The predominant religion in Mongolia is Tibetan Buddhism, so December 25th will come and go with very little ceremony, however Mongolians seem to have embraced the western New Year with much enthusiasm. The city is decorated in lights and brightly colored tinsel and plastic Santas are on sale everywhere. Most social gatherings are a buzz with people planning New Year’s Eve celebrations and debating where the “hot spots” will be in Ulaanbaatar this year.

Dr. Fine was selected as a Luce Scholar (a program sponsored by the Henry Luce Foundation designed to give young American professionals experience working in Asia) in the spring of 1998 and started her assignment at the Mongolian Veterinary Research Institute in early September.

Food Animal Fellows

For ten weeks during the 1998 summer break eight veterinary students accompanied local veterinarians on farm calls and attended seminars at New Bolton Center. “We established the program in 1995 to give students the opportunity to experience veterinary practice for food animals,” said Dr. David Galligan, chief, Section of Animal Health Economics and Nutrition. “Each year a greater proportion of students entering veterinary school has not been exposed to food animal practice. We have had 29 students go through the program and at this stage it is too early to tell if we have seen an increase in the number of students entering food animal practice as a career choice. Even if student food animal fellows do not select “food animal practice” they will be better informed about animal production systems when dealing with the public.” Funds for the fellowships were received from the Commonwealth and internal sources. In 1999 the program will be supported by funding from The New York Farmers.

Pennsylvania Veterinary Medical Historical Society

The Society is attempting to collect, preserve and display artifacts and archival materials relating to the history of veterinary medicine. This summer we had a display at the Landis Valley Farm Museum featuring a replica of an old time one room veterinary clinic.

The Society also had a display table of information and artifacts at the School’s Open House at New Bolton Center in September and at the Pennsylvania Veterinary Medical Association meeting in October. The display consisted of informative literature, a number of old equine instruments and various sized Stader splints. The Stader external fixation splints were developed for different sized dogs and were also adapted by Dr. Stader for use on humans. The public had the opportunity to investigate the manipulation necessary to reduce a fracture of a canine humerus and a plastic human humerus. These various splints became available through the generous contributions and support of Dr. Richard Stader, a human orthopedic surgeon and the youngest son of Dr. Otto Stader. Dr. Otto Stader graduated from the University of Pennsylvania, School of Veterinary Medicine in 1917. After much frustration in attempting to stabilize some animal fractures, Dr. Stader developed and patented the Stader splint in 1941. He then modified these splints to be used in human medicine. They were used extensively by the Navy for casualties during World War II. Dr. Otto Stader’s oldest son, Robert, graduated from Penn in ’90.

We now have the Robert Shomer book collection on shelves in the Jean Austin du Pont Library at New Bolton Center. We are in the process of getting all the books catalogued into a computer program and making this collection available to the public. When this is completed we will be able to accept additional archival material for preservation in a future museum.

These are a few of the projects that we are in the process of completing. Our organization is growing but we can always use the input and help from any interested individuals. Anyone interested in becoming a member or assisting in any way please contact Dr. Max J. Herman at 610-630-6437.
The American Gold Cup, held September 10 to 13 at the Devon Show Grounds, again benefitted the School and its New Bolton Center. A large group of volunteers, alumni, faculty, staff and students, made the four days a success. Saturday was Children’s Day with a dog show, an art show and many other activities. Dave Frankel, weatherman for KYW-TV, and Ms. Mary Remer judged the dogs and put the contestants through their paces. In the end, a Schipperke, pretending to be an equine competitor, walked away with the top prize. The M*A*S*H tent looked after a large number of “injured” stuffed animals and restored them to health. The School’s exhibit featuring the Mark and Lila Allam Center for Sports Medicine and VHUP drew a steady stream of visitors. The Champagne Reception Friday evening provided an opportunity to mingle with friends from the equine world. The 1999 edition of the American Gold Cup at Devon will be held September 16 to 19. Mark your calendars and plan to attend. If you need information about box seats or if you can volunteer your help, please contact Pat Hall at 610-444-5800, ext. 2500 (hall@ben.dev.upenn.edu).

Left column, top to bottom: Mr. Greg Landis, Mrs. Dixon, Mrs. Elizabeth Moran, Mr. Fiz, Eugene Dixon and Dean Alan M. Kelly at the Champagne Reception; Mrs. King, Dr. Charles Raker, Mr. Leonard King and Mrs. Moran at the Champagne Reception; A patient being treated in the M*A*S*H tent; Dr. Harvey explains treatment; The dog show winner demonstrates a trick; An exhibitor is “interviewed” by Dave Frankel.

Right column, top to bottom: Judge Mary Remer confers with her committee; An owner and her treated pet; The Art Show attracts observers; Visitors look over the VHUP display; Visitors examine the Sigafous Glue-On Shoe.
Researcher receives competitive grant

Dr. Jean-Pierre Saint-Genet, who joined the faculty last year as assistant professor of developmental biology, was awarded a three-year Focused Giving Grant by Johnson and Johnson. Dr. Saint-Genet studies cell differentiation in embryonic tissues. He received the grant for his project “Patterning Function of Wnt Signaling in the Central Nervous System.”

He works with embryos of Xenopus laevis, a South African frog. The animals are easy to maintain in a colony and lots of embryos can be obtained. Specific tissues of these are isolated and examined for the potentiality of differentiation. Some in this cell group are committed to a specific lineage and others can be manipulated at this stage.

Dr. Saint-Genet plans to inject messenger RNA for Wnt into specific embryonic cells and then test for the function of the corresponding protein. Wnt, a growth factor, is a member of a molecule group of which one, Wnt1, has been identified as inducing mammary tumors in mice. “A central problem in the study of vertebrate development is defining the cellular and molecular mechanisms responsible for the patterning of embryonic tissues and the differentiation of specific cell types,” said Dr. Saint-Genet. “Secreted molecules that provide recognition signals between cells are believed to play a major role in promoting cell identity. The purpose of this project is to evaluate the function of a class of signaling molecules (Wnt) in the steps that lead to cell diversity along the dorsoventral axis of the spinal cord.”

Dr. Saint-Genet received support for related work from the Thomas B. McCabe and Jeanette E. Laws McCabe Fund and from an internal grant by the University of Pennsylvania.

He received his Ph.D. in developmental neurobiology from Paul Sabatier University, Toulouse, France and did post-doctoral work at the Ecole Normal Superieure, Paris, France and at NIH in Bethesda, MD.

New Director of Development and Alumni Relations

Martha L. Naylor joined the School of Veterinary Medicine as director of development and alumni relations. She is responsible for overseeing the fund raising efforts at both campuses, alumni relations and communications.

Ms. Naylor comes to Penn from Barnes & Roche, Inc., a national fundraising consulting firm, where she was senior vice president-executive search. Prior to joining Barnes & Roche, Ms. Naylor had been working in the development office at Bryn Mawr College. In her more than ten years there she held the following positions: director of annual giving, director of the National Identification Project (a nationwide prospect screening effort), director of regional campaigns during the Campaign for Bryn Mawr, director of major gifts, and acting director of development.

Ms. Naylor is a summa cum laude graduate of Bryn Mawr College and holds an M.Ed. in Counseling and Consulting Psychology from Harvard University Graduate School of Education. She has three cats and a dog and lives in Chester County, PA.

The William R. Newman, M.D. Large Breed Examining Room

The latest addition to VHUP is the William R. Newman, M.D. Large Breed Examining Room, located on the first floor of the hospital. Dr. Newman, a mastiff breeder, felt that the existing exam rooms at VHUP were too small for giant breeds. He made funds available to combine space and create a room with plenty of floor space for canine giants, their owners and the clinicians. Through his generosity the room was equipped with a bank of x-ray viewing boxes and a special hydraulic table that can handle a heavy dog, eliminating lifting it. The room was dedicated during a ceremony following the 29th Annual Canine Symposium. Shown here are Dean Alan M. Kelly and Dr. Newman after the ribbon cutting.
Open House

The School’s Open House on September 19 drew a crowd of about 15,000. It was a warm and sunny day and the visitors enjoyed the exhibits set up in the George D. Widener Hospital for Large Animals. Shuttle buses took the interested to the Marshak Dairy and the M*A*S*H tent “physicians” had their hands full with stuffed animal patients. Many helped make this event a success by demonstrating the skills and attributes of their animals. Among the groups that participated and offered demonstrations were: USDA Beagle Brigade, Chester County 4-H Dairy Club, Southeast Chester County Cattleman’s Association, Red Rose K-9 Search and Rescue Team, Tri-State Bird Rescue, Ross Mill Farms, Udder Chaos 4-H Dairy and Goat Club, Rovenolt Stables with a six-horse Percheron hitch, a dog agility team, a sheepherding duo of border collies and their owner, The First State Coon Hunters Club with jumping mules, and the Pennsylvania Veterinary Historical Society.

Students, faculty and staff also helped with the development of exhibits, the setup, parking and as guides the day of the event. The next Open House will be held in 2000, the exact date will be announced later.
Correction and Update

In Bellwether 43 we reported that Dr. Amanda Fine, V'97, was the first ever Luce fellow from the School of Veterinary Medicine. Dr. Gary Tabor, V'87, informed us that he had been the first graduate of the School to be named a Luce fellow. He, however, did not take the fellowship and selected to go to Africa on a National Geographic fellowship.

Dr. Tabor writes that he is the executive director of the Center for Conservation Medicine, a newly established health collaborative between the Wildlife Preservation Trust, Tufts University School of Veterinary Medicine and Harvard Medical School's Center for Health and Global Environment. The Center's initiatives are focused on the intersection of ecosystem health, human health, and animal health. "Effective conservation efforts require an interdisciplinary team of individuals to tackle the complex environmental, social, medial and political issues faced by the world today," said Dr. Tabor. "By bringing together veterinarians, physicians, ecologists and other conservation professionals, the Center will attempt to provide an ecological context to health management."

Dr. John C. Simms, V'74, was appointed to serve on the Pennsylvania Animal Health and Diagnostic Commission by Governor Tom Ridge. Dr. Adrian Morrison, professor of behavioral neuroscience, presided over the Full Circuit Summit of the National Animal Interest Alliance in Portland, OR in October. He chaired a symposium on sensory influences on sleep at the Congress of the European Sleep Research Society in Madrid, Spain and participated in a forum on animal use in research at the behest of New York University. He was appointed to the Advisory Council of the Benjamin Rush Society at Franklin and Marshall College.

Suzie Weaver has been appointed to assistant director of VHUP, she will continue to hold her current title of director of client relations. Each November the University recognizes employees who have been with the institution for 25 years. The contingent from the School of Veterinary Medicine includes: Janet Brooks, Ronald Krassenstein, Donna Maloney, James Riggin, Dr. Gerhard Schad, Dr. Berhard Shapiro and Frances Tomasco.

Dr. Andre F. Ziegler, staff veterinarian at the Laboratory of Avian Medicine and Pathology, is now a diplomate of the American College of Poultry Veterinarians, Dr. Ziegler spoke on "Avian Influenza, the Pennsylvania Experience, 1997-1998" at the ASPA IV Seminario Avicola Internacional-Enfermedades Respiratorias de TipoViral in Bacaramanga, Columbia.

Carla Garcia, radiology technician at VHUP, passed the certification examination of the American Registry of Radiology Technologists.

Dr. Virginia Reef, professor of medicine, was one of two guest speakers at the Bain-Fallon lecture series in Hamilton Island, Australia. The presentations covered all different areas of ultrasound and cardiology in horses. Dr. Reef was a guest speaker on a panel on tendinitis in the horse at the ICEEP meeting in Tokyo, Japan which focused on equine exercise physiology and then was a guest speaker at a JRA meeting on tendinitis in horses in Tokyo. Dr. Reef spoke on many aspects of practical ultrasonography in the horse at the Finnish Veterinary Association meeting and gave a course in cardiology there for the equine practitioners group. Dr. Reef's book Equine Diagnostic Ultrasound was published in the spring of 1998 by W.B. Saunders.

Dr. Corinne Sweeney, associate professor of medicine, Dr. Erik Birks, assistant professor of physiology, Dr. Jill Beech, V'72, professor of medicine and Dr. Benson Martin, V'80, assistant professor of sports medicine, also were speakers at the ICEEP meeting in Japan. Dr. Martin was a speaker at the ACVS meeting in Chicago, the NEVMA/CTVMA and at the AEEP meeting in Baltimore, MD.

Dr. Beech was appointed University Judicial Administrator. The judicial administrator presides over all student disciplinary/academic integrity hearings.

Dr. Darryl N. Biery, professor of radiology, and Dr. Jerry Owens are the authors of Radiographic Interpretation for the Small Animal Clinician, published in a second edition by Williams and Wilkins. The book is expected to be translated into German, Japanese and Spanish, as was the first edition, and will be used worldwide in teaching imaging to veterinary students and veterinary practitioners. Dr. Owens completed his residency training in 1976 at Penn under Dr. Biery.

Dr. David Holt, assistant professor of surgery, lectured for two weeks in Japan to the Japanese Animal Hospital Association.

Dr. Michael Goldschmidt, professor of pathology, is one of the collaborators on the Histological Classification of Epithelial and Malignant Tumors of the Skin of Domestic Animals and to the Histological Classification of Tumors of the Genital System of Domestic Animals. Dr. Mattie J. Hendrick, V'78, associate professor of pathology, collaborated on the Histological Classification of Mesenchymal Tumors of Skin and Soft Tissues of Domestic Animals. The volumes, last published in the mid-seventies, are considered "bibles" by pathologists. They are published by the Armed Forces Institute of Pathology in cooperation with the American Registry of Pathology and the World Health Organization Collaborating Center for Worldwide Reference on Comparative Oncology.

Dr. Meryl Littman, V'75, associate
professor of medicine, presented a talk at the Pennsylvania Federation of Dog Clubs symposium in October.

Dr. Edgar Balliet, V'79, and his wife Gay have shared many experiences in his veterinary practice. Now they have been chronicled in Gay Balliet's book Touched By all Creatures - Doctoring Animals in the Pennsylvania Dutch Country, published by New Horizon Press.

Dr. Ralph Brinster, V'60. Richard King Mellon Professor of Reproductive Physiology, was honored by his peers in the fall in a very special way: The International Journal of Developmental Biology, Volume 42, No. 7, was published as a special issue entirely devoted to Dr. Brinster's work.

Students, faculty and staff turned out in numbers on Thanksgiving Sunday to help WHYY-TV raise funds. The group's phone-answering services resulted in well over $30,000 in contributions.

Dr. Donald A. Abt, V'61. Emeritus Professor of Aquatic Animal Medicine, has been appointed secretary-treasurer of the International Association for Aquatic Animal Medicine. Recently he was appointed to serve on the Scientific Advisory Board of the newly established National Marine Life Center. Dr. Abt was also elected president of the brand new Cape Cod Stranding Network, Inc.

Dr. Christopher Hunter, assistant professor of pathobiology, was an invited speaker at the Inflammation Research Symposium in October.

Dr. Mark Haskins, V'69, professor of pathology and medical genetics, is on sabbatical in Nantes at the Laboratoire de Therapie Genique where he making adeno-associated viral vectors coding for canine and feline lysosomal enzymes to be used in gene transfer for animals with mucopolysaccharide storage diseases.

Dr. Gail Smith, V'74, professor of surgery, together with Dr. Gordon Lark, a geneticist at the University of Utah, received a two-year grant from the Morris Animal Foundation to attempt to identify genes for canine hip dysplasia. The study, “Identifying Genes for Canine Hip Dysplasia: Linkage to Molecular Markers,” will utilize recent advances in canine genetic mapping coupled with an accurately quantified hip scoring technique (PennHip®) to develop a gene test for hip dysplasia.

Dr. Hamish Rodger, lecturer in aquaculture, was an invited speaker at the Aquaculture/Environment Interactions conference in Halifax, Nova Scotia. He co-chaired and was a speaker at the Emerging Disease session of the International Symposium of Aquatic Animal Health, held in Baltimore, MD.

Ashta Markowitz, director of student-curricular affairs and continuing education, received a Masters in Science in Organizational Dynamics from Penn.

Bruce Rappoport, associate dean for Commonwealth of Pennsylvania Veterinary Medicine. Recently he was appointed to serve on the Scientific Advisory Board of the newly established National Marine Life Center. Dr. Abt was also elected president of the brand new Cape Cod Stranding Network, Inc.

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Bruce Rappoport, associate dean for New Bolton Center and director of the Widener Hospital, was elected president of the Pennsylvania Equine Council and vice-president of the Pennsylvania Livestock Association.

Dr. Lesley King, associate professor of critical care medicine, was the organizer of the Sixth International Veterinary Emergency and Critical Care Symposium held in San Antonio, TX. The Penn contingent of speakers was large and consisted of Drs. Kenneth Drobatz, Hilary Fordyce, Urs Giger, Derek Hughes, Amy Kapatkin, Tricia McManus, Kathryn Michel, Cynthia Otto, Robert Poppeng and Lori Waddell. Veterinary technicians Patricia Mullane and Donna Oakley also gave presentations.

Dr. Sydney M. Evans, V'77, associate professor of pathology, was the keynote speaker at the Oxygen and Oncotherapy Conference in Egmond aan Zee, Netherlands in November. She also gave a talk on her NIH-sponsored clinical trial on measuring oxygen in human tumors at the Netherland Cancer Institute.

Dr. David Nunemaker, V'68, Jacques

Jenny professor of surgery, and Dr. Dean Richardson, associate professor of surgery, participated in the 68th AO ASIF Course in the Advanced Equine Section in December in Switzerland. Dr. Nunemaker was elected to the two-year presidency of the AO VET international organization.

Dr. Stuart Myers, assistant professor of large animal reproduction, received a grant from the USDA for his project "Capacitation and Acrosomal Status of Equine Sperm during Cooled Storage and Cryopreservation." USDA awarded a grant to Dr. Ray Sweeney, V'82, associate professor of medicine, for the study "Role of Cytokines in Immune Response to Paratuberculosis Vaccination in Cattle.”

Dr. Robert Whittock, associate professor of medicine, received USDA funding for the project “Biology and Immune Response of Cattle Naturally Infected with M. paratuberculosis.”

Dr. Robert J. Eckroade, associate professor of poultry pathology, was an invited speaker at a meeting "Food Safety in the Poultry Industry and Salmonella Control," sponsored by Japan Agriculture and held in Tokyo, Japan in November. He also spoke on avian influenza at the Fourth Asia Pacific Poultry Health Conference, held in Melbourne, Australia in November.

Dr. E. Neil Moore, professor of physiology in medicine, organized and chaired symposium at the annual NASPE meeting on basic cardiac electrophysiology. He participated in a Rush-Presbyterian Symposium at Mackinac Island, IL and gave a lecture at a Columbia University College of Physicians symposium. In August Dr. Moore participated in a European Congress of Cardiology Satellite Symposium held in Istanbul, Turkey.

Dr. Lawrence Gerson, V'75, was elected president-elect of the Pennsylvania Veterinary Medical Association. Dr. Mark Guise, V'82, was elected vice-president and Dr. Max Van Buskirk, V'56, was elected secretary-treasurer of the organization. The PVMA honored him by presenting him with the Distinguished Veterinarian Award for his many years as director of the Bureau of Animal Industry, Pennsylvania Department of Agriculture.

Dr. Charles D. Clark, V'61, received (continued on page 14)
New Breeds

The United Kennel Club is the second largest all-breed purebred dog registry. Recently it has recognized the Teddy Roosevelt terrier, a variety of rat terrier. Rat terriers were developed in England by crossing smooth fox terriers with Manchester terriers. They came to the United States late in the 19th century with their working class owners. They were indispensable in rural and urban areas, where rats presented a serious threat to health and livelihood. The short-legged dog was developed by introducing dachshund, Corgi or short-legged Jack Russell terriers into the breeding stock. The result was a low-to-the-ground hunter, fearless, tenacious and with a high energy level. They became a separate breed and were named for President Teddy Roosevelt, who thought so highly of their hunting ability that he took several with him on big game hunts.

U.K.C. also recognizes "cur" and "feist" breeds, descendants of the hounds and terriers used by early settlers. Their primary purpose was to locate and tree small game. The U.K.C. cur and feist program includes morning squirrel hunts and evening raccoon hunts.

The American Kennel Club has added three "new" breeds to those which can be entered in championship dog shows in 1999 — Havanese, Löwchen, and Anatolian shepherd.

The Havanese (Toy Group) is an old breed of the Bichon family, also known as the Havana silk dog. They are sturdy, short-legged small dogs. The weight ranges from 7 to 13 pounds. They have a soft, profuse, untrimmed coat. The Löwchen (Non-Sporting Group) has been a distinct breed for more than 400 years. The name (from the German "little lion") comes from the traditional clip with close-cut hindquarters and a full, natural mane. The Anatolian shepherd (Working Group) is a guard dog originating in Turkey, quite probably more than 6,000 years ago. It is a large dog (110 to 150 pounds). The breed is reserved around strangers and when off its territory. The dog has an unique ability to protect livestock.

(continued on page 15)
Alternative Medicine

At the moment alternative medicine is a rather controversial subject and much attention is paid to it. Alternative medicine includes acupuncture, chiropractic, physical therapy, homeopathy, botanical medicine, nutraceutical medicine and holistic medicine. The American Veterinary Medical Association defines holistic medicine as a comprehensive approach to health care employing alternative and conventional diagnostic and therapeutic modalities. Some veterinarians acknowledge that these treatments may be useful. The AVMA has issued guidelines, stating that they should be used only by licensed veterinarians educated in the modalities employed.

Glucosamine is one nutraceutical which is being used extensively for arthritic conditions to relieve pain and help restore mobility. Herbal medicine has been used for thousands of years. Many dog breeders give raspberry tea to pregnant bitches — evidence suggests that it has an effect on the uterus. According to folklore, garlic can be used for almost any ailment or parasite. Cascara is laxative officially recognized by the United States Pharmacopoeia.

It must be remembered that all medicines and herbal products may be toxic, even lethal, if given in improper amounts. Large doses of vitamins may have unwanted side effects. Scientific studies are necessary to establish safety, efficacy and tolerability.

Another consideration is the placebo effect — a “cure” may be psychologically induced — an inert product might give the same results as the drug.

Alternative methods should only be used after consultation with a veterinarian. He or she should have up-to-date information and give advice pro and con about treatment.

Old Age

Aging results in progressive reduction of the ability to withstand stress and disease and we see white hairs and usually reduced activity level.

In humans, an “aged person” is over 75 years. In dogs, the signs of aging appear at different ages, depending on the size of the animal. Small breeds, which mature rather fast, may be “grown up” by 12 months of age and become geriatric at 13 years. Large breeds may continue growing for two or three years, but they become “old” at 9 or 10 years.

There are only “educated guesses” when we try to translate dog or cat years to human years. It has been said that a 14-year-old dog is the equivalent of a 72-year-old human. Some say that one “people” year is the same as seven cat years, but this really isn’t correct — a better guess is that a 15-year-old cat is equivalent to a 75-year-old person.

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Annual veterinary check-ups are recommended for older animals. Some exercise is a requirement — “use it or lose it.” Also, although not a proven fact, obesity probably reduces life expectancy.

Veterinarian’s Oath

Being admitted to profession of veterinary medicine,

I solemnly swear to use my scientific knowledge and skills for the benefit of society through the protection of animal health, the relief of animal suffering, the conservation of livestock resources, the promotion of public health, and the advancement of medical knowledge.

I will practice my profession conscientiously, with dignity, and in keeping with the principles of veterinary medical ethics.

I accept as a lifelong obligation the continual improvement of my professional knowledge and competence.

Adopted by the AVMA in July 1969

Book Review


This classic publication of the American Kennel Club contains pictures, historical information and the official AKS standard for each of 146 breeds recognized by AKC. An excellent glossary defines terms used in the text.

There is information about registration, conformation dogs shows and the many performance events held under AKC rules. In addition to the conformation title "Ch.", there are 33 titles for other events. These include titles in obedience, hunting tests, field trials, herding tests, tracking, agility, earthdog and lure coursing. AKC’s Canine Good Citizen program is a fun, noncompetitive way to ensure that dogs are respected members of society. It is open to all dogs, purebred and mixed, and the 10 tests are designed to show that dogs can be well-behaved at home, in public and around other dogs.

There is a short chapter on training, including the five basic commands — Heel, Sit, Stay, Down, and Come. Obedience training should begin at four to six months, although it is never too late to train an older dog. Housebreaking is explained, including the direct method and paper training if there is not ready access to a yard. Most housebreaking problems arise when a soft-hearted owner allows an untrained puppy free run of the house. Confinement in a small area or crate is necessary for success. Suggestions for regular grooming include attention to the dog’s teeth, nails, ears, eyes and anal sacs.

The section on canine health and first aid covers the most common problems. Vaccination seems to be an overlooked subject. It is mentioned briefly — (dis)temper as the principal cause of sickness and death in unvaccinated dogs — vaccination to control parvovirus and leptospirosis — regular rabies vaccinations imperative for the protection of humans and dogs). Although there is currently some controversy, particularly in regard to the yearly “boosters” often recommended, the control of infectious diseases in puppies requires a vaccination program. This basic information is missing. Its importance should be stressed.

The Complete Dog Book is highly recommended as a source book for the dog owner or anyone thinking about owning a dog. Of its 800 pages, just over 600 are devoted to the AKC breeds. If you want accurate information about a breed, you will find it here.
Lyme Disease Study Enters Second Phase

The Chester County Lyme Disease study by University of Pennsylvania School of Veterinary Medicine researchers entered its second phase in January 1999. Between January and March Chester County residents will be contacted by phone to identify and recruit persons who have not contracted Lyme Disease during 1998. They will be asked to join the study as a control group.

The study, funded by the Centers for Disease Control, and conducted in cooperation with the Chester County Health Department (CCHD) by Dr. Paul Wiley and Dr. Gary Smith began in July. During the first phase Chester County residents who had contracted Lyme Disease were asked to answer survey questions about recreational activities, lifestyle, employment and other potential risk factors. These surveys of cases are continuing at this time. These same survey questions now need to be answered by the control group. The researchers then will analyze both sets of answers and compare the frequency of risk factors among the case and non-case (control) groups. They will look for associations between disease occurrence and environmental or lifestyle factors which may put people at risk.

The data will provide information about the strongest risk associations. For example, hunting, fishing or camping may emerge as high risk activities, or the findings may indicate that living in a house on a densely wooded lot where deer congregate regularly may present a high risk. Once risk factors have been determined the CCHD can develop specific educational measures to address those most at risk in an effort to reduce the incidence of Lyme Disease in the county. Chester County in recent years has experienced an explosive growth in the number of Lyme Disease cases, a reportable disease.

Dr. Gary Smith is professor of population biology and epidemiology and chief of the Section of Epidemiology and Public Health at Penn's School of Veterinary Medicine. Dr. Wiley is a research associate in the section. Both are located at New Bolton Center, the School's large animal facility in Chester County. The study received funding from the Centers for Disease Control and is conducted in cooperation with the CCHD.

Study to identify causes of abortion and pregnancy wastage in horses

Researchers at the School received funding from the Pennsylvania Department of Agriculture for a three year study to identify the causes of abortion and pregnancy wastage in horses in Pennsylvania. Dr. Patricia Sertich, assistant professor of reproduction, is the chief investigator. Early in 1999, horse breeders in the state will be sent a survey to determine their preventative management of broodmares and to solicit their participation in this project. Veterinarians who provide reproductive care for these breeding farms will be solicited to participate in the project and receive information and materials to properly submit diagnostic specimens for determination of the cause of pregnancy loss in any aborting mares. Owners who are willing to complete a management survey and provide properly submitted specimens will receive a complete necropsy of any aborted fetuses. The Pennsylvania Department of Agriculture grant will underwrite the cost of necropsy and diagnostic tests.

Horse breeding is a viable industry in Pennsylvania. A large amount of money, time, and effort is invested in preparing mares for breeding, getting them bred, and maintaining them throughout pregnancy and delivery. In the mare, twin pregnancy is the most common documented cause of abortion. The introduction of ultrasonography in the 1980's to examine early pregnancy in mares has permitted the development of methods to manage twins early in gestation before abortion or neonatal loss occurs. Little has changed over the last 15 years with regard to management recommendations of the late pregnant broodmare. Insufficient information is available about the control of other causes of abortion in horses. Information obtained in this study will allow recommendations to be made on how to prevent these losses and may identify new areas of research in pregnancy loss.

Interested veterinarians and horse breeders in Pennsylvania are encouraged to contact Dr. Patricia Sertich at New Bolton Center, School of Veterinary Medicine, University of Pennsylvania, 382 West Street Road, Kennett Square, PA, 19348-1692, Tel.: 610-444-5800.

Mrs. Anne F. Thorington's young homedred pair of Morgans (aged three and four) by Kennebec Count have their first outing at the 1998 Brandywine Carriage Driving Show. Mrs. Lisa Singer is the whip and Mrs. Thorington, a member of the School's Equine Committee accompanies her in the carriage. The Fifth Annual Show, which will again benefit New Bolton Center's Field Service, will be held on June 13, 1999 at Willowdale, Pennsylvania.
**Puppy Owners Needed for Study**

The Center for the Interaction of Animals and Society at the School of Veterinary Medicine is urgently seeking the cooperation of local veterinarians and breeders to help it recruit puppy owners to participate in a major new study of puppy behavioral development.

Previous studies have shown that certain events and experiences occurring early in puppy development—event as seemingly trivial as a visit to the veterinarian—may have long-term adverse effects on later behavior, such as the development of severe, adult behavior problems. The present study aims to explore this relationship in more detail in order to identify the precise characteristics and timing of these predisposing events and experiences.

For the study, we need the participation of breeders and/or owners of 5-12 week-old puppies (of any breed) who are willing to complete a weekly ‘Puppy Diary’. The Puppy Diary simply requests details of each puppy’s daily activities, experiences and behaviors until it is 16 weeks of age. When the puppy is one year old, the owners will also be sent a ‘Behavioral Assessment Questionnaire’ that takes approximately 30 minutes to complete. Although participating owners/breeders are unlikely to derive any direct benefit from the results of this study, its aim is to improve the behavior and welfare of dogs in general, and pilot work suggests that most owners find the topic interesting and enjoy completing both the Puppy Diaries and the Questionnaire. In addition, we hope that the findings will benefit veterinarians by identifying ways in which aspects of veterinary practice can be modified to reduce its potentially negative impact on puppy development.

If you are interested in helping with this study by identifying suitable puppy breeders and owners from among your clients, please contact Dr James A. Serpell, Marie A. Moore Assoc. Prof. of Humane Ethics and Animal Welfare, School of Veterinary Medicine, University of Pennsylvania; Tel. (215) 898-1004, Fax. (215) 573-6050, email: serpell@vet.upenn.edu.

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**Interdisciplinary Urology Research Center Receives NIH Grant**

Dr. Samuel Chacko, professor of pathology at the School, and director of Basic Urology Research in the Division of Urology at Penn’s Medical School, received the prestigious George M. O’Brien Urology Research Center grant in the amount of $3.67 million. The award, made by the National Institute of Diabetes, Digestive and Kidney Disease of the NIH, is to establish a Urology Research Center to investigate the remodeling of bladder smooth muscle following outlet obstruction. According to Dr. Alan J. Wein, chair of the Division of Urology at the Medical School, this multidisciplinary research center, under the direction of Dr. Chacko, will provide an environment for investigators to apply state-of-the-art tools in cell and molecular biology to research related to the pathogenesis of urologic disease.

Dr. Chacko will coordinate an extensive investigation of the cell/molecular basis of contractile dysfunctions in smooth muscle cells in the bladder wall following outlet obstruction in an animal model. The structural and functional changes associated with outlet obstruction in the animal model are similar to those seen in men with benign prostatic hyperplasia (BPH). This condition affects more than half of men in their sixties and as many as 90 percent in their seventies and eighties. The urinary bladder obstruction, which causes urinary dysfunction and incontinence, is a leading cause for institutionalization of elderly men. The clinical relevance of the study to be undertaken by the Urology Research Center is apparent when one considers that the cost of bladder dysfunction and urinary incontinence is estimated at $10 billion annually.

In addition to smooth muscle researchers at Penn’s School of Veterinary Medicine and School of Medicine investigators in the Departments of Physiology at MCP, at Thomas Jefferson University and at Children’s Hospital of Philadelphia will participate in this in-depth study of urinary bladder dysfunction in outlet obstruction and return of function after surgical reversal. The Urology Research Center will focus on three major studies: Expression of channel proteins and calcium pump in remodeling bladder smooth muscle following outlet obstruction under the direction of Dr. Michael Kotlikoff, School of Veterinary Medicine; Myosin isoforms and calcium regulation of actomyosin ATPase in detrusor following outlet obstruction and remodeling under the direction of Dr. S.K. Chacko with co-investigators Drs. A.J. Wein and M. DiSanto of the School of Medicine; Mechanism of force generation and maintenance in bladders: effects of outlet obstruction under the direction of Dr. R.S. Moreland, MCP and Dr. R. Barsotti at Thomas Jefferson University. Dr. Stephen Zderic at CHOP will direct a core facility at the Abrahamson Research Laboratory.
Special Gifts

The following have contributed gifts to the Friends of the Small Animal Hospital in memory of a special pet:

Ms. Dorothy Anderson, R.N. in memory of BLACK KNIGHT
Ms. Susan Andrews in memory of WAYNE
Ms. Donna Carlisle Bain in memory of GINGER and TINA
Drs. Christopher and Elizabeth Berger in memory of BOBBES
Ms. Joan Caviati in memory of MOKEY
Ms. Patricia Charest in memory of TIGER, ACE and HARRY
Mr. and Mrs. Eugene Chinge in memory of BRANDY and BIANCA
Mr. and Mrs. Robert M. Coster in memory of SAMANTHA
Ms. Elizabeth Crawford in memory of COFFEE
Ms. Carol A. Crook in memory of MAJOR
Ms. Ruth Crothers-Spiter in memory of BUDDY
Mr. and Mrs. William F. Dahms in memory of STINGER
Mrs. Helen W. Depeachbeck in memory of WINDSOR
Mr. and Mrs. Durwood M. Adams in memory of CORKY
Ms. Elizabeth Ehrenkranz in memory of SMOKEY
Ms. Anne M. Farah in memory of PLUFFY
Ms. Edna Fleer in memory of JLNNY DOG
Ms. Lynda Fino-Cain in memory of DUBIE & TUFFY
Mr. Jack Forman in memory of Tuffy
Mr. George Fowler in memory of TAPPY
Ms. Nancy Grabumbo in memory of JHAWK
Ms. Nancy Gucambino in memory of RITA
Ms. Kathy & Mr. Angel Govear in memory of MURPHY
Ms. Dana M. Geodyer in memory of TIFFANY
Ms. Diane Gourdain in memory of LILLO
Ms. Susan & Mr. Tom Hader-Golden in memory of SMOOCH
Mr. Henry R. Hecht in memory of BARNEY
Ms. Diane Kant in memory of SUZIE
Mr. and Mrs. Barry Kauffman in memory of PRINCESS
Mr. Albert Kerrigan in memory of SNOOPY
Ms. Beverly Kinney in memory of ABBY
Ms. Mary Anne Kirby in memory of LICORICE
Mr. and Mrs. Kermit Kofler in memory of SPUNKY
Ms. Audrey Lawlor in memory of KIT KAT
Mr. Gerald L. Magid in memory of SAM
Ms. Catherine F. McCullough in memory of SAMMY
Ms. Betty L. McCurdy in memory of HERKIMER
Mr. James A. McMillan in memory of ROCKY
Ms. Margaret J. McManus in memory of DONEGAL
Mrs. Lynn Meyers and Mrs. Christa Petka in memory of JULIE
Mr. and Mrs. James E. Millain in memory of CHINOOK
Ms. Lois Morgan in memory of MOOSE, MOUSE, and ARGUS
Ms. Mary Alice Musser in memory of LILY
Ms. and Mrs. Elron Nardini, Jr. in memory of KELLY
Ms. Diane Nee in memory of BUDDY
William J. O'Reilly, V.M.D. in memory of CRYSTAL LIGHT
Mrs. Despina F. Page in memory of IKE
Mr. and Mrs. Arnie Pal in memory of AFFIRMIAN DELACOSTA
Mr. and Mrs. Leo Pollock in memory of STAR
Ms. Gina A. Porcellino in memory of BENSON
Ms. Jill Pritts in memory of HEIDI & JERRY
Mrs. Diana Riley in memory of ARROW
Mr. and Mrs. Charles Romeo in memory of RAZZLE
Mr. Raymond Roland in memory of GYPSY
Mr. Raymond J. Russell in memory of MISTY BLUE
Ms. Catherine Settembrini in memory of NOEL
Mr. Theodore S. Watson in memory of SANDEE
Mr. and Mrs. Jeffrey Werner in memory of MAISONETTE & MIDNIGHT
Mr. and Mrs. Jeffrey Werner in memory of FRAZIER
Ms. Suzanne Zbar in memory of ZOE

The following have contributed gifts to the Friends of the Small Animal Hospital in memory of Jasper:

Ms. Ellen Campbell
Ms. Molly Callinan
Ms. Claire Eichhorn
Ms. Mickie Hall
Ms. Susan Kabat
Ms. Rebecca Mauter
Ms. Cynthia Payne
Ms. Julie Russo
Ms. Julie Seo
Ms. Patti Ward
Ms. Cynthia Wells

Gifts were made to Dr. Urs Giger's Feline Research in memory of a beloved animal:

Dr. and Mrs. Sheldon Steinberg in memory of MARGE

The following have made donations to the Humanitarian Fund in memory of Buffy:

Mr. Douglas S. Derr
Rev. Ronald Beardsley

Gifts were made to Oncology Research in memory of the following:

Mr. and Mrs. Richard Words in memory of TEEK and KONGA

The following have contributed gifts to the Friends of the Small Animal Hospital in honor of a special pet:

Gale Montgomery in honor of CRICKET

The following have made donations to the Small Animal Hospital in honor of those listed:

Church of St. Boniface in honor of Robert J. Weiner, V.M.D.
Mr. and Mrs. Eugene Chinge in honor of Dr. Niseneholtz

Mrs. Eleanor M. Falsching in honor of Dr. Michael B. McDonnell
Ms. Dana M. Goodyear in honor of Dr. Jeffers and Squires
Harriet S. Gross, M.D. in honor of Ms. Alison Culp and Dr. Enrico De Pappi
Ms. Diane Kast in honor of Dr. Prudence Neath
The Knobler Family in honor of Mr. Andrew Charles in honor of his Placement in the SRMS Geography Bee
Mr. and Mrs. Ronald Medford in honor of Dr. Paul Feinberg
Ms. Rita K. Pollack in honor of Dr. Heather Petosky
John M. Rodagger-Finkelstein, Esq. in honor of Mrs. Kathleen Dunn
Ms. Irene Strum in honor of Dr. Weiner
Ms. Nancy Sullivan and Mr. George Hennessy in honor of Ms. Nancy Mastera, Metafay and Meslay; Mr. Rick Vesay, Mr. Wil and Mr. Phyl Sampson, Elite Pools: Willy Epitran and Staff, P&A Pet Foods; Sargeantville Grain and Feed: Ms. Deb and Mr. Rich, Camera and Camera and Russell, Ms. Robin and Mr. Chuck Ruchenberg
Ms. Audrey C. Troy in honor of Dr. Susan Jacobson

The following have made donations to the Small Animal Hospital in memory of those listed:

Ms. Doris Fink in memory of Joan O'Brien, V.M.D.
Mr. William H. Gumprecht in memory of Ms. Diane M. Gumprecht
Ms. Linda Petillo in memory of Ms. John Petillo
Mr. and Mrs. Martin Rosemont in memory of Ms. Sylvia Catuldo

The following have made donations to the Small Animal Hospital in memory of Mrs. Carol A. Smith:

Dr. Michael A. Kardner
Ms. Helen M. Knell
Ms. JoAnn M. Marr
Mrs. Nora McGee
Mr. Joe McCool
The Puchello Family

The following are gifts made to the Josephine Deubler Genetic Disease Testing Laboratory in memory or honor of those listed:

Winnington Kennel Club, Inc. in honor of Dr. Josephine Deubler
Louise A. Valier-Feust in honor of Mrs. Lillian Schwartz
Mr. Marion L. Levy, Jt. Business Performance Solution Team in memory of Mr. Harry Schwartz
Mrs. Helen Weeks in memory of Mr. Harry Schwartz

The following are gifts made to the Deubler Genetics Testing Laboratory in memory of Mr. Virgil Millett:

Bucks County Kennel Club
Mrs. Helen Weeks
Mrs. Damara Bolte
The following have donated in memory of Mr. Charles S. Wolf for Scholarship:

- Allied Investment Advisors
- Captain and Mrs. James T. Alexander
- Ms. Donna Allen
- Dr. and Mrs. Robert Bryant
- Mr. and Mrs. Stuart H. Carroll
- Corrugated Supplies Corp.
- Dr. and Mrs. Ned C. Clinkscales
- Mr. and Mrs. Edward M. Resovsky
- Mr. and Mrs. Duncan Van Dusen
- Ms. Marian S. Ware
- Ms. Jean S. Waltersdorf

The following have made donations to the Deubler Endowment Fund in memory or honor of those listed:

- Mr. Thomas A. Deubler in memory of Dr. James A. Deubler

The following have made donations to the Mr. Isaac Tomlinson Tyson Scholarship Fund:

- Ms. Susan S. Leiper

The following have made gifts to the Connelly Intensive Care Unit in honor of those listed:

- Carol Golub in honor of Mr. and Mrs. David Romanoff

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

- Hopewell Veterinary Hospital in memory of Mrs. Mary A. Vansant
- Huntington Valley Kennel Club in memory of Mrs. Mary A. Vansant
- Dr. Michael Tanner in honor of Dr. Dean W. Richardson

The following have made donations to Friends of New Bolton Center in memory of Keith Taylor:

- Sharon L. Selfstedt
- Dr. David Szymanski

The following have made gifts in memory of Dr. Mark Whittier Allam for the Allam House Fund:

- Dr. Nancy O. Brown
- Dr. William J. Kay
- Mr. and Mrs. William T. Salam
- Dr. Robert R. Shomer

The following have made gifts in memory of Mrs. Lila Griswold Allam & Dr. Mark Whittier Allam for the Allam House Fund:

- Dr. Edwin A. Churchill
- L.J. B. Foundation
- Dr. and Mrs. William V. Lumb
- Dr. and Mrs. John R. McCoy

The following have made donations to Friends of New Bolton Center in memory of Keith Taylor:

- Dr. Kenneth C. Bovée Retires

Dr. Kenneth C. Bovée, Corinne R. and Henry Bower Professor of Medicine, retired in November. Dr. Bovée, a graduate of The Ohio State University, came to Penn in 1964 as a post-doctoral fellow in internal medicine in the Division of Graduate Medicine. He joined the faculty of the School of Veterinary Medicine as an assistant professor in 1964 and was appointed Bower Professor of Medicine in 1981.

A Charter Diplomate of the American College of Veterinary Internal Medicine since 1972, Dr. Bovée served the Internal Medicine College in many ways, including as President in 1979-80.

A prolific author of articles describing original studies and of chapters in textbooks in the field of veterinary urology, Dr. Bovée has also written a book, Canine Nephrology, published in 1984. Dr. Bovée is internationally recognized for his expertise in small animal urology, and was awarded the Ralston Purina Small Animal Research Award in 1980.

Dr. Bovée has served the School and Department with distinction and in many roles, including Chief, Section of Medicine for a total of 16 years, and as Chairman of the Department of Clinical Studies. Dr. Bovée was Chairman of the Department during the construction of and move into VHUP. Dr. Bovée has also served the University as a member of the Faculty Senate and of the Academic Planning and Finance Committee, and served for 10 years as the Chair of the Graduate Group in Comparative Medical Sciences.

Dr. Bovée has been very supportive of the integration of social work into VHUP, and was appointed to a Secondary Faculty position at the Penn School of Social Work in 1985.

Recently, Dr. Bovée has chaired a broad-based national group (CAPAC) that has examined trends in potential for new directions for veterinary practice.
War Memento to VHUP

Stanley A. Wojtusik, national vice president of public affairs, Veterans of the Battle of the Bulge WWII, presents a photograph of a soldier sharing his K-ration with a puppy to Barry Stupine while Jack Hyland, also a veteran of the WW II battle, looks on.

The black and white photograph was presented to Mr. Wojtusik and Mr. Hyland last year during a military reunion in Belgium by a Belgian veteran, who, as a member of the Belgian Fuseliers, had fought alongside the American troops. The picture was taken during the encampment at the battle location by the U.S. Signal Corps. The framed photograph will be placed in VHUP’s Rainbow Room.

Calendar

- May 16, 1999: Alumni Day, New Bolton Center
- May 17, 1999: Graduation, Philadelphia
- June 13, 1999: Brandywine Carriage Driving Show
  To benefit New Bolton Center
  Willowdale, Rt. 82 and 926, Willowdale, PA
- August 4 to 7, 1999: A Weekend in Old Saratoga, Saratoga, NY
- August 7, 1999: An Evening in Old Saratoga Gala, Saratoga, NY
  To benefit New Bolton Center
- September 16 to 19: American Gold Cup, Devon show Grounds, Devon, PA
  To benefit the School and New Bolton Center

Find the School on the internet at www.vet.upenn.edu

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

Address correction requested

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