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A New Intensive Care Facility

Adjacent to the C. Mahlon Kline Center at the New Bolton Center campus of the University of Pennsylvania School of Veterinary Medicine, a new building is nearing completion. The 11,000 square-foot structure, the Connelly Intensive Care Unit and the Graham French Neonatal Section, is the first free-standing building specifically designed for the intensive care of large animals.

The building, more than five years in the planning stages, is a state-of-the-art facility designed solely for the care of critically ill large animals. "For many years we have provided intensive care for critically ill patients," said Dr. William Donawick, Mark Whitner and Lila Griswold Allam, Professor of Surgery. "But it had to be given in our regular hospital wards, making it difficult for the nursing staff and the clinicians, because these animals were housed in different buildings."

Recognizing the special needs of equine neonates, we recently installed a small, temporary neonatal unit in one of the barns. This new building will greatly enhance and expand our ability to care for the critically ill adults and foals in one central location."

More than 1000 critically ill patients were seen at the George D. Widener Hospital for Large Animals last year. Most were horses, indicating that close to 80-90 percent of the patients here are equine; however, among the animals requiring intensive care there were a number of bovines. Some patients, such as horses with colic, require only a short intensive care period, 24 to 72 hours, while others, animals with fractures, botulism, laminitis, and other severe medical conditions, may require stays ranging from a few days to months in length.

"Intensive care of large animals has become feasible with the development of trained nursing staff," said Dr. Donawick. "Round-the-clock nursing care and new methods of treatment have increased the chances of survival." Nowhere is this more evident than in equine pediatrics, a relatively new field. "We now can save many of the critically ill neonates," said Dr. Wendy Vaala, lecturer in medicine. "We have used a high frequency ventilator for premature animals to support foals that cannot break on their own, such as premature foals and foals with botulism. With the development of total parenteral nutrition, critically ill neonates can be fed intravenously for as long as necessary." Dr. Vaala explained that the current small neonatal unit cared for 42 foals in 1987; six of these were premature, seven had botulism, eight had septicemia, and four were "dumb" (neonatal maladjustment syndrome) foals. "Our ability to care for critically ill neonates will be improved in the Graham French Neonatal Section; the facility will be larger and we will be able to operate more efficiently."

"Connected to the C. Mahlon Kline Orthopedic and Rehabilitation Center, this new building will greatly aid in the care the School can provide for critically ill animals," said Dr. Donawick. "We will be able to move such an animal by monorail from the operating theater directly to the door of its stall in the new building. Animals that require recovery from anesthesia in the pool can also be moved by monorail to their stalls, and the reverse trip can be made by animals requiring water therapy in the pool."

The facility is divided into two units: Surgical/Medical Intensive Care for adults (SMICU) and Neonatal Intensive Care for foals and other young animals (NICU). SMICU has six stalls and NICU has five stalls, two of which are specially designed to be continued on page 12.
New Appointments

Dean Edwin J. Andrews has appointed Dr. Daniel Cohen, associate dean for research, and Dr. Charles D. Newton has been named director of recruitment.

James F. Wilson, D.V.M., J.D., joined the School as acting medical director of VHUP. Dr. Wilson, a graduate of Iowa State University Veterinary School, holds a law degree from UCLA. For 13 years he has been a small animal practitioner in the San Francisco Bay area. He also taught law and ethics and business management courses at the University of California Veterinary School at Davis.

Dr. Wilson is no stranger to Penn. He visited last year to teach in the professional foundations course and to work in the dermatology department as a specialist in small animal ear problems. Currently, Dr. Wilson is at VHUP three days a week and serves as acting medical director. The position may develop into a full-time position in the spring after he has completed his book on law and ethics in veterinary medicine, an in-depth textbook about legal areas having an impact on the profession.

In this newly created position, Dr. Wilson supervises the medical services at VHUP, the clinical pathology laboratory, pharmacy and medical records, as well as dealing with decisions pertaining to the purchase of equipment. The new position will help VHUP to further upgrade medical care to clients and increase the efficiency with which such care is delivered. He will also teach a course in veterinary business management and participate in the professional foundations course.

Mr. Bruce A. Rappoport has joined the School's staff as director of the George D. Widener Hospital for Large Animals at the New Bolton Center campus. Mr. Rappoport, a resident of Turnersville, N.J., has been a hospital administrator for more than ten years. Prior to coming to New Bolton, he held the position of executive vice-president and chief operating officer at Lourdes Ancillary Services, Inc., Collingswood, N.J. Previously, he served as senior vice-president at Our Lady of Lourdes Medical Center, a 384-bed teaching hospital in Camden, N.J. Before coming to New Jersey, Mr. Rappoport held administrative positions in hospitals in Florida. He graduated from Ohio State University and received an M.H.A. degree from George Washington University, Washington, D.C.

Mr. Rappoport wants to improve communications with clients, particularly in the administrative area. Clients are encouraged to call him with comments, suggestions, and complaints regarding the hospital's operation. He can be reached by calling (215) 444-5800.

Jeffrey P. Roberts, appointed assistant dean for development and planning, is responsible for School-wide activities in development, strategic planning, communications, and construction management.

Among the many hats he wears, Mr. Roberts is the newly established position, is reorganizing and strengthening the development office, creating an office of communications, construction management, and managing the completion of the Second Century Fund.

Mr. Roberts arrives at the School with a set of very unusual qualifications. He graduated from the University of Rochester, received an M.A. in American History from Temple University and completed Ph.D. coursework in Urban History and Geography. He helped organize a consulting company that specialized in architecture, history, and land use. In addition, serving as a meteorologist in the U.S. Navy, Mr. Roberts was curator/historian at the Atwater Kent Museum, Philadelphia. Prior to his joining the Veterinary School, Mr. Roberts was director of development at the Morris Arboretum of the University of Pennsylvania, where he managed successfully the arboretum's first capital campaign. Beyond his professional interests, he has served on the boards of several Philadelphia cultural institutions.
any seashore vacations this summer were marred by beach pollution, and people grew fearful when unusually large numbers of dead dolphins were washed ashore. "The Marine Mammal Stranding Center in Brigantine, N.J., reported 60+ dead dolphins," said Dr. William Medway, professor of clinical laboratory medicine at the University of Pennsylvania School of Veterinary Medicine. "Many were badly decomposed and had been maulled by sharks."

Medway, who has worked with marine mammals since 1962, assembled a team here at Penn in an effort to determine why dolphins were dying in such large numbers. "Drs. Tom van Winkle, Virginia Pierce, Mattie Hendrick, Gail Heyer, and I got together to cooperate with Bob Schoelkopf, director of the Marine Mammal Stranding Center. It was a voluntary effort on our part. Schoelkopf would contact Dr. Medway whenever he had newly dead animals, and the team would travel to Brigantine to perform necropsies. Most of the dolphins were too badly decomposed or mutilated to draw conclusions. The break came in early August when a recently dead dolphin was washed ashore. "The dolphin looked septicemic and it had a number of skin lesions," said Dr. Medway. "We took tissue samples and sent some to the USDA laboratory at Ames, I.A. for further study. I had a hunch that we might be dealing with a *Vibrio* infection and requested that cultures for *Vibrio* be done. Many came back positive."

*Vibrio*, a group of bacteria, are found in the ocean. There are a number of species: *V. alginolyticus* and *V. nigrificus* are known to cause disease and, in some cases, death in people. "In 1979, we isolated *V. alginolyticus* from the blood and organs of a dead Atlantic white-sided dolphin," said Dr. Medway. "This animal had acute necrotizing hepatitis and acute focal bronchopneumonia." Many of the dolphins washed ashore in New Jersey showed signs of pneumonia. *Vibrio* bacteria flourish during the summer months with the highest concentrations during July and August, the period when most of the dolphin deaths occurred along the New Jersey coast.

"It has been reported that people who had cuts or other open wounds have become ill with *Vibrio* infections after bathing in the ocean," said Dr. Medway. "The dolphins we examined, and those seen by scientists elsewhere, all had skin lesions. The lesions were typical of dolphin pox, a virus disease first identified in dolphins in the late seventies. Usually the disease is benign and the mortality rate is low." Researchers believe that pox outbreaks in dolphins are related to stress and the general health of the animals. It was found, for example, in one aquarium that the animals showed signs of pox only when being moved to another tank at the end of the season. "We don't know whether the dolphins along the Atlantic coast were stressed. But we do know that water conditions have changed. The Gulf Stream has come closer to land, changing the habitat area of inshore dolphins. We have also noticed an apparent increase in the shark population, which might put pressure on the dolphins. In addition, there is the pollution which has greatly increased. All these factors could account for the outbreak of pox among the dolphins."

Dr. Medway explained that pox lesions provide the *Vibrio* organism with an ideal access to the dolphin's system. "The dolphins could get infected and then develop general sepsisemia and die." One other clue that points to *Vibrio* is that the number of dead dolphins has decreased dramatically since the end of August in New Jersey waters: ocean water temperature drops at the end of summer.

Trying to determine the causes of death of the dolphins is not easy, as the researchers can only work with dead animals. "Dolphins are protected under the Marine Mammal Protection Act, and it is prohibited to catch a live dolphin and then kill it to study it. One of our graduates, Dr. J. R. Genrau, a marine mammal specialist from Guelph University, Canada, did get permission to collect blood samples from dolphins. This was done with the help of the Navy off the Virginia coast."

Dr. Medway believes that *Vibrio* infections killed the dolphins. "But at this point we do not know why the organism affected the animals in such a fatal way this year. Were the dolphins weakened by the pox, or was there another factor in addition to pox disease, such as pollution? Only further study will tell."
Treatment of Brain Tumors

Until recently, the diagnosis of a brain tumor in a dog or cat meant that nothing could be done to prevent the disease from taking its course. But that is slowly changing. Veterinarians at teaching institutions are borrowing from human medicine and are treating brain tumors in small animals aggressively.

"We are taking the human protocol and are adapting it to our patients," said Dr. Betsy Dayrell-Hart, a neurologist and lecturer in medicine at the University of Pennsylvania School of Veterinary Medicine. "Human medicine is more experienced with the treatment of brain tumors, and at VHUP we frequently consult with neurologists from Children's Hospital when we are considering surgery to remove a brain tumor.

Clinicians at VHUP perform about six brain surgeries on dogs and cats annually. "Usually such surgery is just one element of the treatment," said Dr. Dayrell-Hart. "Most of the animals also require chemotherapy or radiation treatment or both to reduce or eliminate the tumor. The different specialties cooperate closely in these complex cases."

Treatment is not undertaken lightly. "The top priority is the quality of life the animal will have after treatment," she said. "Will it be able to function normally without pain and will its life be extended by a significant period? We must also consider the owners. Brain tumor treatment requires a commitment, financially and in terms of time and emotion, during the animal's recuperation period. Many trips to the veterinarian are needed for follow-up treatment, and the owners may have to put up with temporary loss of training and sometimes impaired other functions in the pet. And then, despite all these efforts, treatment is not always successful. However, each animal we treat teaches us something new, enabling us to go a step further with the next case."

Cindy, a six-year-old bullmastiff, is a recent patient of Dr. Dayrell-Hart. She had lymphoma of the brain and underwent surgery, chemotherapy, and radiation therapy. Dr. Dayrell-Hart first met Cindy early one Wednesday morning in April. Cindy had been admitted to VHUP with signs of severe neurologic disease. "She was blind in her right eye, was confused and kept circling, even though she had trouble walking."

From the history provided by JoAnn Duarte, Cindy's owner, Dr. Dayrell-Hart knew that Cindy had been healthy until two weeks prior when she suddenly showed signs of depression and failing vision. Tests had ruled out infectious diseases and poisoning as reasons for the symptoms.

Cindy received a thorough physical and then a CT scan to determine the cause of her troubles. "The physical exam is still most important in neurologic cases as it allows us to determine brain function and helps to pin-point the affected area," she said. Additionally, the scan then helps to precisely locate the troubled area, and it provides visual images of the changes in the brain. Cindy's scan showed an inflammatory area over the left side of her brain. "We treated and stabilized her and sent her home with antibiotics and other medications."

Shortly thereafter, Cindy had seizures which increased in intensity. "We took her back to Penn," said Ms. Duarte. A second CT scan revealed a mass which had formed in the left side of the brain, and it showed that the entire brain had shifted in the skull case due to pressure.

"We knew that we had to perform surgery to relieve the pressure or we would lose the dog," said Dr. Dayrell-Hart. "We also wanted a biopsy to determine the nature of the mass." After the risks of the procedure were discussed, Ms. Duarte opted for the procedure.

"Brain surgeries are difficult operating and take a lot of planning because the brain is so delicate and does not tolerate changes well," said Dr. Dayrell-Hart. One of the biggest dangers is bleeding, and surgeons have to be very careful to avoid blood vessels to minimize bleeding. "The physical exam and the CT scan help us locate the affected area, and we can then determine how to approach the surgery." In Cindy's case it wasn't clear whether surgery could even help her due to the location of the brain. "In people, this condition is usually fatal."

A neurosurgeon from Children's Hospital (CHOP) took great interest in the case and was present during the operation to advise. "We have a close relationship with the specialists at CHOP that Cindy had been with the delicate instruments needed for this type of surgery. Our instruments are larger; we hope to eventually acquire our own set." Brain surgery requires special anesthetics and monitoring devices to ensure that the brain does not swell during surgery, "It takes quite a bit of preparation on our part to coordinate such surgery," said Dr. Dayrell-Hart. "The anesthesia team is crucial to the success of the surgery. Dr. Kim N. Olsen headed this team. Cindy was in good physical condition and relatively young compared with our previous patients. So she was a 'good' risk."

On the day of the surgery, the dog's head and neck were shaved. A long incision was made so skin and muscles could be peeled back. "We try very hard not to damage the muscles and nerves so the animal can have a normal appearance after surgery." The brain of a large dog is about the size of an adult's fist. In Cindy's case, almost half of this mass was affected by the growth.

"We drilled a needle-sized hole to relieve the pressure and to perform a biopsy. The tumor location was such that we couldn't remove much of the tumor." During surgery, a pathologist stood by to examine the tissue samples to determine the type of tumor. "It was a puzzle and only later were the tissues identified as a lymphoid tumor, an extremely rare condition when it is only in the brain." The surgery did not go smoothly.

The tumor had a great number of arteries supplying it with blood and there was much bleeding. "We had to use suction to remove the blood and electrocautery to close some of the blood vessels. Some were clamped with metal clamps which are still in Cindy's head."

When the dog woke up from anesthesia, she got up and walked over to her food bowl to eat. "The pressure had been relieved and the hole in her skull provided continued relief," said Dr. Hart. "The muscle mass over the opening was sufficiently thick to protect the brain from external injury."

"We visited her a few days after the surgery and couldn't believe that she was up and around," said Ms. Duarte. "Of course, she was not out of the woods, as it was explained to us that she had a lymphoid tumor in her brain and that radiation therapy and chemotherapy were needed to shrink the remaining tumor. We opted for the treatment as we are extremely attached to the dog and wanted her to get well again."

"Primary lymphomas in the brain are very rare in dogs and when they occur in people, they are often fatal," said Dr. Dayrell-Hart. "Usually these growths are secondary to a tumor elsewhere. We checked Cindy and could not find any evidence of lymphoma anywhere else and concluded that the growth in her brain probably was primary."

The dog was referred to Dr. Ann Jeglum, an oncologist at the School who devised a treatment plan to
shrink or eliminate the tumor. Cindy received a five-day infusion of chemotherapy drugs. A course of radiation treatment lasting longer than a month was also prescribed. This was administered by Dr. Sydney Evans.

As her treatment had to be performed at VHUP, Cindy became a regular resident. "We visited her once a week as we live three hours away," said Ms. Duarte. "The dog was cheerful and seemed pleased to see us. She obviously knew all the nurses and her way around the ward. She seemed quite comfortable during her stay and was not fretting or whining when we left."

Cindy stayed at VHUP for eight weeks. "When she left, many staff members came to say 'Good Bye,'" said Ms. Duarte. "It was quite emotional and I never expected the concern all these people showed for our dog." Cindy is home now and her hair is growing back. She was sent home with two courses of chemotherapy which are being administered by her veterinarian. Her blood is being monitored weekly to catch any adverse effects quickly. "Our veterinarian has worked closely with the specialists at Penn, and getting the follow-up treatments at his office has made it easier for us."

Recently, Cindy returned to VHUP for another CT scan. It showed no evidence of the tumor. "We are elated," said Ms. Duarte. "The dog is her old self, her memory has returned, and she can do her obedience exercises. She acts like a three-year-old. We are even thinking about taking her into the show ring again, in the veteran's class!"

Cindy is not the norm. "She is a lot younger than our other brain surgery patients," said Dr. Dayrell-Hart. "Most of the cats and dogs we operate on are much older and not as good risks. But we have had a good rate of success! Most frequently, surgery is just part of the treatment, as in the case of Cindy. Animals often also receive chemotherapy and radiation treatment. "We have some patients which were treated for brain tumors three years ago; there are others who lived only another year longer. But with each patient we learn more, and this helps the next case," said Dr. Dayrell-Hart. "We ask the owners to bring the animal back if it is failing. If it has to be euthanized, we do it here and then conduct an autopsy. This helps us evaluate the treatment and ascertain the changes in the brain. Owners do go along with this as they realize that this knowledge will help another animal."

When Ms. Duarte was asked whether she would have another dog treated should the problem ever arise again, she said that she didn't know. "Cindy is special to us and we wanted to do anything to save her. But it was an emotionally draining experience and I don't know whether I could face that again, the worry, the shock, seeing her with her head shaved, and the concern as to whether she might be suffering. It is hard."

Dr. Dayrell-Hart and her colleagues are cautiously optimistic about Cindy's prognosis. "We think that it was a primary lymphoma. Blood and bone marrow tests show no evidence of other tumors." Neurosurgery in small animals is a new field, and each case contributes to the knowledge. "We are fortunate in that we have the different specialists here and the physicians from CHOP. Without all these people, a case like Cindy's could not have been treated here."

Dr. Dayrell-Hart graduated from Penn in 1983. She completed her residency in neurology here last year and was appointed a lecturer in medicine.

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Inherited Immunodeficiency in Irish Setters

Ten years ago, a syndrome characterized by recurrent bacterial infections and very high white blood cell counts was reported in young Irish setters. Their white blood cells were apparently unable to kill bacteria. But the molecular defect has only recently been elucidated by researchers at the School of Veterinary Medicine of the University of Pennsylvania.

Over the last two years, Dr. Urs Giger, assistant professor of medicine and medical genetics, and Dr. Mark A. Bronstein (V73), a practitioner in Ardmore, PA, have been treating an inbred Irish setter cross which has chronic recurrent bacterial infections. Since a few weeks of age, the dog has had a variety of infections, including skin, gum and bone infections, pneumonia, and recently pyometra. They appeared poorly responsive to antibiotics, the only treatment presently available. "Interestingly, the white blood cell or leukocyte count of this dog was always incredibly high, being at times over 200,000," said Dr. Giger. "Such leukocyte counts are generally only seen in dogs with leukemia. These leukocytes were obviously unable to fight any infection, although they appeared morphologically normal and were present in large numbers."

Dr. Giger and his collaborators, therefore, studied the function of these leukocytes and found that they had diminished capability of adhering to any surface because adhesion-promoting proteins on their cell surface were missing. "The process of adhesion is vital in the function of leukocytes and includes cell adher-

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White blood cell adhesion to plastic surface: cells from control dog adhere readily and spread on surface (left), whereas few cells from the affected dog are adhering (right).

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Porcine Ovarian Cysts

ight profit margins are the norm in agricultural industry, and any factor decreasing production can make the difference between realizing a profit or just breaking even. Farmers raising pigs for slaughter expect a sow to produce six or more litters over her lifetime. But 8 to 10 percent of sows have a poor production record due to cystic ovaries. Initially, these animals have normal first or second estrus and then, instead of showing an increase in litter size, the number of piglets decreases; the animal exhibits irregular estrus or no estrus at all. The animal is culled from the herd and the farmer begins anew with a replacement, hoping that it will not develop cystic ovaries. The disorder, curable with hormone therapy, in cows, is not treatable in pigs.

"Cystic ovary disease is seen in one form or another in all mammals," said Dr. Obologade O. Babalola of the University of Pennsylv:尼亚 School of Veterina:y Medicine. "It is generally believed that cysts arise in the swine ovaries following failure of the follicles to rupture and ovulate, and that this failure is probably due to inappropriate gonadotropin stimulation." The interactions of hormones during the reproductive cycle are complex, and Dr. Babalola is studying the levels of ten steroid hormones in the follicles of pigs as part of the effort to determine the mechanism causing cystic ovary disease.

The follicle houses the female gamete and nourishes it through the production of follicul:;; steroid and other factors. These growth factors, steroids and other compounds, in turn, are necessary for normal development and maturation of the ovarian follicles. Follicles go through several stages prior to maturation and ovulation when the ovum is released. Following ovulation, the follicle becomes a corpus luteum, a gland which produces mainly progesterone, a hormone needed to maintain pregnancy. The stages of follicle maturation are controlled by hormones; some of these are produced by the pituitary gland and others originate in the ovarian follicles. A complete interplay of hormonal actions exists between the ovarian and pituitary hormones.

Dr. Babalola is studying the steroid hormone production capacity of ovarian follicles. "As a necessary first step in studying cystic follicles, we had to establish normal hormonal levels in healthy follicles," Dr. Babalola said. "It was basic research but necessary to identify any hormonal abnormalities in the cystic follicles." Pigs, during each reproductive cycle, produce a number of ova. It is not unusual to find cystic and healthy follicles in the same animal.

Previously, steroid hormone levels in healthy and cystic swine ovaries have not been completely characterized. In Dr. Babalola's project, 10 steroid hormones present in the ovarian follicles of sows were measured by multiple, simultaneous radioimmunoassay techniques. The hormones were: pregnenolone, progesterone, 20α-dihydroprogesterone, 17α-hydroxyprogesterone, androstenedione, 5α-dihydrotestosterone, dehydroepiandrosterone, testosterone, estrone, and estradiol-17β. These steroids represent three major groups of gonadal (reproductive organ) steroids—progestins, androgens, and estrogens.

"We obtained the ovaries from pigs slaughtered at a Philadelphia slaughterhouse. They were removed from the carcass within one hour of slaughter, cooled and taken back to the laboratory for examination." Ovaries from animals which had cycled at least once were studied to determine the normal levels of ten steroid hormones in healthy follicles. "We examined the ovaries and assigned them to functional phases of the estrous cycle," he said. "It was divided into the luteal and follicular phases, each subdivided into early, mid, and late stages, and ovulatory stage ovaries. The size of normal follicles was determined and then the follicular fluid was aspirated and pooled for each animal. The fluid was then prepared for radioimmunoassay and analyzed for the ten steroids."

Dr. Babalola found that the progesterone concentration in follicles in the early follicular phase was significantly higher than in those in the mid or late luteal stages. He also found that other progestins were present in significantly higher concentrations in the late follicular stages than in the mid luteal or the mid follicular stages. Androgens, another group of steroid hormones, were low during the early stages of the ovarian cycle, but during the mid and late follicular stages, there was a dramatic increase in the level of three androgens. Estrogens showed the same pattern as androgens.

"We found significantly lower levels of all androgens and estrogens and lower levels of progestins in ovulatory follicles, but the progestin decrease was less dramatic than that of androgens and estrogens. At ovulation, steroids declined significantly. Progesterone levels declined 45 to 70 percent, and androgens and estrogens were reduced by more than 90 percent. It was also found that 20α-dihydroprogesterone did not decrease; rather, it was significantly elevated. This aspect of our finding is of importance as it is of potential applicability as ovulation predictor."

Once data were compiled for steroid hormone levels in healthy follicles, the same process was followed to collect this information for cystic follicles. "We found a distinct steroidogenic aberration in the cystic ovarian follicles," he said. "This was characterized by excessive levels of progesterone and a profound deficiency of androgens and estrogens. Although progesterone was the major progestin found in all follicles, it only accounted for 20 to 50 percent of all steroids measured in healthy follicles. In contrast, 97 percent of the steroid concentrations in cystic follicles was progesterone. Furthermore, the sum of all androgens and estrogens made up less than 0.2 percent of all steroids measured in the cystic follicles, a proportion which was found to be highly significantly different when compared to the 10 percent found within the low level control small follicles."

Dr. Babalola explained that various steroid hormones are formed in follicles by enzyme activity. "It appears that the enzymes transforming progesterone into androgens and estrogens are defective in cystic follicles." At this point, it is not known whether these enzyme defects lead to the development of cysts or whether the cysts cause this condition. Further studies are needed. Currently, Dr. Babalola is measuring these enzymes in the tissues of cystic follicles, and it appears that the enzyme deficiency exists in the tissues, also.

Dr. Babalola's studies are supported by a USDA Formula Fund. Dr. Babalola has a great interest in reproduction. He received his veterinary degree from the University of Ibadan, Nigeria, in 1978 and began teaching at that university in 1980 in the Department of Surgery and Reproduction in the Faculty of Veterinary Medicine. In 1983, he came to Penn to study surgery. He is now a member of the Graduate Group of Comparative Medical Sciences at the University and is working toward his Ph.D. His project on the study of porcine cystic ovaries is under the direction of Dr. Bernard H. Shapiro, associate professor of biochemistry and biology.

"This work has relevance for me. Pork is an important source of animal protein in many parts of the world," he said. "It is a major food source in the southern part of my country. Perhaps we can find the cause of the disease and then develop a treatment to prevent the losses incurred by this disorder." When Dr. Babalola completes his studies, he will be the first veterinarian from Nigeria to receive a Ph.D. degree from the University of Pennsylvania.
Research Continues into Colic Causes

In one of many recent difficult telephone conversations, I attempted to console an owner: "I am sorry but there is no hope for survival. Perhaps if we had been able to operate earlier, . . . ." So ended the life of a nine-year-old thoroughbred broodmare, succumbing to a complete large colon torsion.

The word colic can cause mild panic in horsemen. Deaths from colic are caused by a number of diseases, ranging from inflammation of the intestinal tract (enteritis) to the more common abdominal accidents, including torsions and displacements. Colic is the number one cause of death in horses. In fact, a recent informal survey of three equine insurance adjusters indicated that mortality claims due to colic may outnumber deaths from other causes as much as two to three times. Certainly, millions of dollars are lost annually due to colic.

A recent overview of colic cases presented to the George D. Widener Hospital for Large Animals at the New Bolton Center campus of the University of Pennsylvania School of Veterinary Medicine revealed an increase in the number of horses admitted for colic due to problems associated with the large intestine. Consequently, one aspect of colic research at New Bolton Center has focused on studying motility in the major components of the large intestine, the large colon, and cecum.

A brief look at the anatomy of the large colon reveals that Mother Nature has not been kind to the horse. Only a small portion of the colon is attached to the horse's body wall, leaving approximately 12 to 15 feet of the bottom (ventral) and top (dorsal) colons free to move and twist on themselves.

A feed change from hay to lush pasture or a heavy parasite load, therefore, may be enough to cause a change in the movements of the colon, called motility, which may result in the accumulation of feed material or gas. Gas distension of the ventral or dorsal colons can cause rotation or torsion, most commonly in a clockwise direction, resulting in blockage of the blood supply, irreversible shock and, in a matter of hours, death. One particularly deadly form of colic, known as large colon torsion or volvulus, occurs frequently in broodmares around foaling time.

Research at Penn's School of Veterinary Medicine on the normal motility of the large colon and cecum has led to the identification of a possible "electrical pacemaker" area in the wall of the cecum. The pacemaker, wandering over an 8- to 12-inch area of the cecal wall, generates this important motility pattern which enables digested food to leave the cecum and enter the ventral colon. This motility pattern, or motor event, is a coordinated series of intestinal muscular contractions which actually forces food material from the cecal body around the base and into the ventral colon.

Abrupt feed changes or damage to the cecal vessels due to blood worms, *strongyloides vulgaris*, may interrupt the pacemaker and slow or stop movement of feed material from the cecum. Researchers think that the important motility pattern continues around the ventral colon to the pelvic flexure region and may be responsible for the movement of food material in the colon as well.

The effects of therapeutic agents on motility of the cecum and the colon also must be thoroughly investigated. In preliminary studies at New Bolton Center, one such agent, known as neostigmine, has shown a potential for stimulating or increasing the motility of the cecum and colon. Studies also revealed that another drug, xylazine (Rompun), often used as a sedative when treating horses with colic, actually slowed down or stopped intestinal motility for up to 30 or 45 minutes. Based on results of these studies, new surgical procedures have been developed at New Bolton Center for horses with cecal impactions. For instance, in one procedure known as cecocolic anastomosis, a new channel is created for impacted food material to exit the cecum. Fourteen of the 16 horses presented to Penn's Widener Hospital with cecal impactions have been successfully treated with this procedure. Previous modes of treatment for the problem have resulted in a success rate of approximately 50 percent. Depending on the availability of funding, future research at Penn's New Bolton Center campus is planned to determine the changes in motility caused by gestation and foaling and how management changes might prevent fatal large colon problems.

Until more is known about normal large intestinal motility and the effects of various conditions on it, what can horsemen do to prevent fatal colic? Avoidance of abrupt diet changes and maintenance of an excellent overall parasite control program (including reduction of exposure to parasites and timely administration of deworming medications) appear to be helpful.

Recognition of serious forms of colic in a horse, however, is critical to the animal's chances for survival. For instance, horses which show continuous or severe abdominal pain are more likely to have life-threatening problems. Other signs of a more severe form of colic include elevation of the heart or pulse rate from the normal 40 beats per minute, an increased respiratory rate, sweating, blanching or reddening of the mucous membranes, and increased capillary refill time and dehydration. Horses with large colon torsion may show the above signs as well as abdominal distension or bloating and reduced intestinal sounds heard by listening with a stethoscope. When any of these signs are evident, immediate veterinary assistance should be sought.

--Michael W. Ross, D.V.M., lecturer in surgery

Editor's note: This article first appeared in the Daily Racing Form, August 10, 1982.
Correction of a Congenital Defect in a Calf

Veterinarians at the University of Pennsylvania School of Veterinary Medicine recently corrected a congenital defect in a calf. "Oreo," a black and white Holstein-Friesian calf, was admitted comatose to the George D. Widener Hospital for Large Animals at the New Bolton Center campus, said Dr. Johanna Reimer, resident in medicine. "The calf was obviously normal in size and weight, and the only previous illness occurred three days prior to admission." The 10-week-old calf presented quite a diagnostic challenge, and it was treated ultimately not only by New Bolton Center clinicians but also by clinicians from VHUP and from Children's Hospital in Philadelphia.

On admission, a tentative diagnosis of viral encephalitis was made. The calf was treated and within two hours it stood up, but was uncoordinated in the hindquarters and dragged its rear leg. Over the next few days it improved, although it did exhibit intermittent episodes of depression, stupor, grinding of teeth, and tremors.

Sixteen days after hospitalization, the calf appeared normal but "a few days later it suddenly became ataxic again, exhibited tremors and was depressed," said Dr. Reimer. "We had previously monitored routine liver enzyme activity, and it had been normal, but in view of the recurring clinical signs we had to reconsider a diagnosis of encephalopathy, a brain disorder caused by a virus." The calf was maintained on a low protein diet, although its blood ammonia level was very elevated. In view of these results, a tentative diagnosis of a portosystemic shunt was made.

A liver biopsy was performed and no abnormalities were found. The next diagnostic tool employed was ultrasonography which revealed a shunt vessel between the portal vein and the caudal vena cava, compatible with a patent ductus venosus. "In the fetus, the portal vein and the vena cava are connected by a blood vessel," said Dr. Reimer. "This bypasses the liver, but normally it closes early in life. If closure does not occur, substances such as ammonia and bile are not filtered from the blood by the liver and the animal becomes ill and dies. The defect has been diagnosed in dogs, cats, and one other calf.

Further tests were needed to determine the extent and location of the shunt. While arrangements were made to have these tests performed at VHUP, the calf was maintained on a low protein diet. It appeared normal, although its blood ammonia level was elevated. At VHUP, mesenteric portography was performed. "The animal was anesthetized and an incision was made in the right flank," said Dr. Reimer. "The liver was normal in size and appearance. A catheter, inserted into an intestinal vein, was passed into the portal vein. Contrast material was injected and radiographs were taken as the material entered the enlarged portal vein and then went into the caudal vena cava through a patent ductus venosus. The diagnosis of a patent ductus venosus was confirmed."

The calf was maintained on a low protein diet with small frequent feedings while clinicians tried to determine a course of treatment. Occasional episodes of depression, inappetence, bruxism and tremors occurred, but these resolved spontaneously within one to three days. A pediatric specialist with an interest in congenital defects was consulted. Dr. Henry Wagner, professor of pediatrics at Children's Hospital, Philadelphia, agreed to assist in an attempt to close the shunt with an umbrella-type device. Three months after the calf had been admitted, it was again anesthetized for surgery. A catheter was passed into the ductus venosus with the aid of fluoroscopy and ultrasonography. Another catheter containing the occlusion device, was passed through a jugular vein into the caudal vena cava to the opening of the ductus venosus. The two catheters were joined together to enable the catheter containing the umbella to be pulled into the ductus venosus. The umbrella-like vessel occluder was placed in the shunt with hooks to secure it in place and attached to the shunt vessel wall. Partial occlusion occurred; the securing hooks pulled free from a part of the vessel wall.

The blood ammonia levels and bile acids remained elevated but were improved. Blood still flowed through the ductus venosus toward the caudal vena cava. The calf continued to grow, although after six months of age, its height and weight began to fall below expected values. At this point, because the animal weighed over 200 pounds, fluoroscopy and radiographic contrast studies could not be performed with available equipment. Surgery was performed by Dr. William Donawick, Mark Whittier and Lila Griswold Allam Professor of Surgery, to assess the situation and to attempt to close the shunt with ligatures. He was assisted by Dr. Henry Wagner and by Dr. John Spremple from the University of Pittsburgh School of Medicine. A catheter was inserted into the ductus venosus to facilitate identification of the shunt.

The surgeons examined the liver and found it small but normal. The ductus venosus was close to the surface of the organ and was only partially encircled by liver tissue. With luck, they appeared possible to encircle the shunt with ligatures and tie off the ductus. Ultrasonography during the surgery confirmed that complete occlusion had been achieved.

The calf recovered, and three days after the operation the blood ammonia level was close to normal. The animal was gradually returned to a normal diet. The calf is now back home and expected to live a normal life. Because this type of congenital defect appears to be uncommon, it is unlikely that it is an inheritable condition.

The incidence of such abnormalities in the bovine is not known," said Dr. Reimer. "They may be difficult to diagnose clinically or at post mortem; liver enzymes may be normal and clinical signs may vary. Portosystemic shunts should be considered in calves with vague neurologic signs, tenesmus, depression or stunted growth once other common causes of neurologic disease and poor growth have been ruled out." She pointed out that the ability to perform ultrasonography and contrast radiography is essential when surgical correction of portosystemic shunts is attempted. "Also, we were fortunate in that the ductus venosus was located close to the surface, minimizing surgical damage to the liver."

She explained that the failure of the occlusion device was probably due to its inadequate dimensions. One must remember that such devices are designed for humans and that blood vessels in large animals are bigger. Although the diameter of the calf's shunt was determined to be at least 2.0 cm, by ultrasonographic techniques, an attempt was made to use the device as it might have been sufficient. While this technique did not work for Oreo, the ligation technique was successful and the clinicians at New Bolton Center were able to demonstrate that such defects can be corrected in large animals.

The cooperation of clinicians from different hospitals, at Penn saved Oreo's life, demonstrating that veterinary medicine and human medicine are not that far apart. The clinicians from VHUP were Des. Jeffrey Wortman and Ger Niebauer. In addition to Dr. Reimer and Dr. Donawick from New Bolton Center Campus, Drs. Virginia Reed and Thomas Divers also helped Oreo...
Bulldog Sleep Studies

A bulldog has a special appeal. Its short, broad head, wrinkles, heavy neck, stocky body, and rolling gait all combine to make it a sturdy, quiet, deliberate companion. But these characteristics also create health problems for the bulldog, as its physical structure predisposes it to breathing troubles.

Dr. Joan C. Hendricks, assistant professor of medicine at the University of Pennsylvania School of Veterinary Medicine, is studying the respiration of bulldogs during sleep. "Bulldogs snore and they usually sleep a lot during the day," she said. "In people, these signs can indicate sleep apnea, a disorder where the person periodically ceases to breathe during sleep. We have examined quite a number of bulldogs and found that they, too, have apnea episodes." Dr. Hendricks explained that bulldogs do not necessarily have a narrow trachea but, frequently, they have excess tissue in the soft palate area. These physical symptoms are shared by people who suffer from sleep apnea. When a sleeper suffers, the muscles in the back of the throat relax and the tissues can collapse and obstruct breathing. This creates a tremendous load on the diaphragm which must work against these restrictions." Sleep apnea is most common in men. Often, they are overweight. Their necks tend to be short and thick, and in many cases the upper airways are narrowed. Snoring is common and breathing may stop several times during sleep. Blood oxygen drops to dangerously low levels and is restored to normal only when breathing resumes. Apnea sufferers are usually tired when they wake up in the morning. Dr. Hendricks has measured the oxygen content of the blood of bulldogs during apnea intervals, and found that the blood oxygen saturation drops to 70 to 80 percent, with over 90 percent being the normal value. It is known that people with sleep apnea frequently have cardiovascular problems, and many suffer from hypertension and abnormal heart rhythm. Dr. Hendricks is trying to determine whether these signs also occur in bulldogs. In the study, the airflow is measured during inhaling and exhaling. The abdominal involvement in breathing is also measured and the heart rhythm is monitored. The measuring devices are contained in stretch belts which are put around the dog. The dogs sleep in a cage and are filmed with a video camera. "Bulldogs go to sleep in ten minutes whereas other dogs need days to get to sleep in the laboratory setting," she said. For many years, veterinary surgeons have tried to alleviate breathing problems in dogs by clipping the soft palate. It is not known whether this helps to reduce the apnea episodes in dogs. In people such surgery, and surgery to reduce other obstructive tissues in the nose and larynx, is to help of about 50 percent of the patients. "We don't know whether the extensive soft palate and the other excess tissue in the nose and throat are there to begin with or whether they develop as a response to obstructions in the airways, such as a narrowed trachea," said Dr. Hendricks. "To find out, we will study litters of bulldog puppies to determine when apnea conditions first develop.

Sleep apnea is a serious medical problem. It is believed that about 5 to 20 percent of men suffer from this condition. It is thought that the disorder may cause a number of medical problems, particularly in the cardiovascular system. Dr. Hendricks feels that it may be related to the bulldog's relatively short lifespan and she hopes that her study of the breed may shed some light on this. "The bulldog breeders have been very supportive and have brought their dogs here so we could study them," she said. "Now I am hoping to study several young litters to determine when the problem first surfaces." Dr. Hendricks research is being supported by a grant from the American Lung Association.

Where are the Phi Zeta members?

Phi Zeta, an honorary society promoting academic excellence in research in veterinary medicine, is looking for its members. "Each year about 35 students are inducted into the Beta Chapter of Phi Zeta here at the School," said Dr. Joan Hendricks (V'79), current president of the group. "Yet our records show only about 60 dues-paying members at this time. Technically, once inducted, a person is a lifetime member. Modest dues of $5 annually are requested to help defray expenses for the activities of the chapter. Obviously, a lot of people have been dropped because of non-payment of dues. We would like to reach them and encourage them to become active in Phi Zeta again."

Each fall, the Beta Chapter sponsors a wine and cheese reception for freshmen to acquaint them with the honorary society and programs such as Aquavit and the V.M.D.-Ph.D. program at the School. The group also encourages students to engage in research and each year calls for papers based on research done by students. A faculty committee selects papers suitable for presentation, and students give a 15-minute presentation in March during Phi Zeta Day. The committee also selects first- and second-prize winners, and cash prizes and plaques are awarded. There are two categories in the competition, one for students in the V.M.D. program and one for those in the combined program.

In addition to these activities, bimonthly meetings are held. The group sponsors a dinner for the inductees each year. Junior students in the top 10 percent of their class are eligible for membership, and senior students in the top 25 percent of the class qualify.

"We would like our members to support Phi Zeta so we can continue to offer the chapter's activities," said Dr. Hendricks. "We have declared an amnesty, and all that is needed is to reactivate a membership is to pay the dues for last year and the current year. Our treasurer is Dr. David Knight and the secretary is Dr. Sheldon Steinberg. Dues and comments can be sent to either one here at the School. I hope they will be deluged with mail!"

Feline Symposium

The Eleventh Annual Feline Symposium will be held on April 16 at the Veterinary Hospital of the University of Pennsylvania in Philadelphia. The day-long event begins at 9:15 a.m. Dr. Douglass K. Macintyre, assistant professor of medicine, will discuss Diabetes in Cats. Use of Radiation Therapy in the Management of Feline Neoplasia will be the topic of Dr. Sydney M. Evans, assistant professor of radiation therapy. The speaker of the afternoon session, Dr. Vicki M. Meyers-Wallen, assistant professor of reproduction, will speak about Feline Reproductive Problems. Mordecai Segal, author and columnist, will end the program with Paws for Thought—An Excursion Into Cat Writing.

The cost of the program is $35, which includes parking and lunch. Reservations are required and can be made by contacting Dr. M. Josephine Deubler, VHSUP, 3650 Spruce Street, Philadelphia, PA 19104-6010.

In addition to the Feline Symposium, the weekend of April 16 and 17 will feature one other cat-oriented event, a four-ring cat show to be held at the Class of 1924 Ice Rink, a few blocks from the Veterinary School. This show will take place on April 17. For further information please call (215) 898-1475.

The Feline Symposium is supported by The Iams Company, Cat Mews, Chesapeake Cat Club, Inc., the Greater Lancaster Feline Fanciers, and the Student Chapter of the American Association of Feline Practitioners.
Zoonoses

There are over 150 diseases which can be transmitted from animals to man (zoonoses). Some are nationwide public health problems. The public press has exaggerated the importance of others or, in some cases, reported proven association as fact. Following are some brief notes on a few different zoonoses.

Rabies is a zoonotic disease of national importance. It may affect any warm-blooded animal, and all domesticated animals may become infected. Rabies is transmitted by inoculation of virus-contaminated saliva into bite wounds. Cats as well as dogs should be vaccinated—recently more rabid cats than dogs have been reported.

Animal bites are one of the most common pet-associated zoonoses. In addition to the possibility of rabies and tetanus, they can result in painful wound infection. Wild animals should not be kept as pets. Enforcement of animal control laws should be strict.

Toxoplasmosis is a disease of children caused by larvae of roundworms (Toxoplasma gondii). It is usually contracted by children eating dirt contaminated with embryonated ascidian eggs passed by dogs and cats. Treatment for ascariids in kittens and puppies should be routine, and prompt disposal of waste can minimize exposure.

Toxoplasmosis is another disease which can be caused by exposure to insect vectors of cats, as well as by eating infected meat. It is unfortunate that some reports have been misinterpreted. The most severe consequence in humans is transplacental transfer of the parasite to the fetus. Daily emptying of litter boxes and proper waste disposal is a good control measure. However, all carnivorous species may become infected with the parasite. Toxoplasma gondii, by eating raw meat containing viable organisms. Cats seem to receive far too much unfavorable publicity as carriers of this disease.

Ringworm is an infection of hair, skin, and nails caused by various fungi. Sometimes, a cat or dog may be a "carrier" with no visible lesions. However, humans may be infected by direct contact.

Sylvatic plague (Yersinia pestis infection) exists in certain areas of western and southwestern United States. Sporadic cases of bubonic plague in man are associated with exposure to rodents or their fleas. It can be present in prairie dog colonies. Cases have been reported in cats but not in dogs. This is a disease that is mentioned only as an example of the rare and unusual.

When you read about a "new" or unusual disease, it would be well to check as to exactly how many cases have been reported. Reports of a few isolated cases may be repeated so many times, one case may result in reports of an "epidemic."

Insecticides

There have been reports about adverse reactions to products sold over-the-counter for flea and tick control. Many times this could have been avoided if directions were carefully followed. READ THE LABEL. Never mix chemicals or increase recommended amounts. Use the products at recommended intervals.

It has been suggested that a new product should be tested on a small area. It is known that some animals react differently than others. Products safe on dogs might be toxic to cats. Different breeds may react differently.

Flea and tick control is an ongoing process. It requires treatment of the environment as well as the animal. House and yard must be sprayed or fogged. Empty and spray vacuum cleaner bags. Don’t forget the inside of the car if the animal rides with you.

Professional advice may be necessary for satisfactory results. But if you do it yourself, follow directions on the package.

If you suspect poisoning, call a poison control center. Check your telephone directory for a local number. The Illinois Animal Poison Information Center is another source of information. Their telephone is 217-333-3611.

New Anesthesia Teaching Aids

The anesthesiology course during the spring semester will be more interesting, thanks to a computer and programs illustrating principles of anesthesiology and situations one may encounter in the operating room. The Animal Rescue League of Philadelphia provided the School with funds to purchase a computer and a host of anesthesiology teaching programs.

"Anesthesiology is a difficult subject to grasp in lectures," said Dr. Alan Kilde, associate professor of anesthesiology. "The concepts are hard to understand and these programs will illustrate them on the computer screen." The programs teach the uptake and distribution of inhaled anesthetics. The students have to choose the amount of vaporizer, oxygen, and anesthetic for a hypothetical patient. The program plots the effects of drugs over time and provides a curve. If the student chooses an improper amount of drugs or oxygen the graph will reflect it and corrections can be made. "The programs illustrate on the screen the effects of various substances and make it easier to understand the concepts involved," said Dr. Kilde. "They will also make the course more interesting."

The computer will also be used to demonstrate different anesthesia techniques. For example, at Penn's Vet School closed-circuit anesthesia with low oxygen flow is used. This requires minimum of anesthetics. Another method is to use a larger amount of anesthetics, and this can be simulated on the computer so that students can be familiar with both techniques.

"The programs also allow us to demonstrate how drug action varies from patient to patient. We can select a hypothetical patient and assign all kinds of values, simulating a critical situation," said Dr. Kilde.

"Anesthesia has to be individualized for each patient, and these programs allow the students to practice this and observe the results on the screen."

The Finnish Spitz

The Finnish Spitz is the latest breed to be admitted to registry in the American Kennel Club Stud Book. Beginning January 1, 1988, it can be shown in the regular classes in the Non-Sporting Group. It is the 130th breed recognized by AKC. (Eight breeds are divided into varieties based on size and color, so there may be 151 breeds and breed varieties competing at AKC shows.)

The Finnish Spitz is now the national dog of Finland. The dog is a natural bark pointer. The dog flushes and sets up a sharp, ringing bark (sometimes called a "yodel") to inform the hunter of the opportunity for a shot. It is a medium-sized dog with a dense, golden-red coat which, combined with its prick ears, pointed muzzle and bushy tail, give it a foxlike appearance.

The breed standard describes the temperament as active and friendly, lively and eager, faithful, brave but cautious. The dog is rugged enough (weighing about thirty pounds) to be an ideal house pet. A "Finkie" (the British nickname) responds to human conversation by "talking" with various thrummy sounds and purring.

The first Finnish Spitz was imported from England to the United States in 1939, and about 750 dogs have been registered with the Finnish Spitz Club of America. Look for them at the shows.

More information can be obtained from Mrs. Betty Isakoff, Finnish Spitz Club of America, 400 House Rd., Monkont, MD 21111.
Cold Weather Reminders

Every year there are reports of antifreeze poisoning. It is very toxic for dogs, yet they seem to love it. Be careful where you drain radiators, and seek prompt veterinary attention if any antifreeze is ingested.

Salt and other products used to melt ice can cause sore feet, especially in city dogs. It is a good idea to wash feet with warm water when dogs have been out on slushed sidewalks. When toweling dry, check between the pads.

Dogs kept in warm apartments, especially the toy breeds, should wear a sweater or coat when taken outside in cold weather. Different breeds have different requirements and some tolerate cold much better than others. If a dog is kept outside, it must have a dry bed with protection from the wind. Young puppies must be kept warm. Bathing should be done only when necessary—regular grooming is more important.

There have been some accidents when cats have found a warm spot to sleep under the hoods of cars. It might be wise to check your cat's whereabouts before you start the car.

Christmas ornaments can be a bazard. Some plants such as poinsettia and mistletoe are poisonous and should be kept out of reach of pets.

It is better not to give a puppy as a Christmas gift. Too much is going on for most people to use the proper attention. It would be better to gift-wrap a collar and leash with a note that the puppy will arrive later. The same is true for kittens.

Be sure your pet wears an identification tag and/or license at all times. A lost pet can cause heartbreak at any time of the year. A house pet lost outside in freezing weather is at particularly great risk.

Books

A Celebration of Rare Breeds by Cathy J. Flamholz (OTR Publications, P.O. Box 1243, Ft. Payne, AL 35967, $24.95 plus $2.00 postage and handling). This book gives history and characteristics of 53 breeds, most of which are not recognized by the American Kennel Club. It is an excellent reference with numerous photographs. Following are brief notes from the text:

• The Akbash Dog is a large, white, sheepguarding breed from Turkey. These dogs are natural guardians, may be aggressive, and are not suitable for all families. The Anatolian Shepherd is a similar breed, but their color may be tan with black nose and ears, as well as white.

• The Leonberger is another large breed which is even-tempered and said to be free of diseases. They have webbed toes, and the iron-colored coat has a pronounced mane or ruff on the neck. The breed was developed in Germany from a Newfoundland-St. Bernard cross, with some Great Pyrenees added. They are trustworthy guard dogs.

• The Fila Brasileiro is the most popular breed in Brazil today. It is a large, strong guard dog weighing 100 pounds and is nearly 30 inches high. The Fila is not a breed for everyone. It is very wary and distrustful of strangers but good with its family.

• The Nova Scotia Duck Tolling Retriever is a small retrieving breed about 20 inches high and weighing under 50 pounds. It is described as "wonderful companions, great children's playmates, super obedience dogs, flashy show dogs and fun to own." When hunting, the toller attracts game by running back and forth, usually retrieving a "rolling stick" thrown by the hunter.

• The Catahoula Leopard Dog is a native American breed. It is the Official State Dog of Louisiana. It is a medium to large breed, about 25 inches in height. The breed's most distinctive feature is its white or "glass" eye. It comes in a wide range of colors, preferably with leopard spotting. The Catahoula is a multi-purpose breed par excellence. It has an inherent desire to herd livestock, has been used for hunting large and small game, is a superb home guardian and a great family or child's companion.

• The Czech or Cesky Terrier was "invented" by crossing the Scottish Terrier and Sealyham. Its color is blue or brown. About ten inches tall and weighing under 20 pounds, the Czech Terrier is a household companion, an avid hunter and a good show dog.

• The Shiba is an ancient Japanese breed. It is an active and alert small dog that can adapt well to city or country living. It is related to, but smaller than the Akita. It comes in many colors, but red is the most popular. The breed has a distinctive "foxy" appearance with prick ears and tail curling over the back.

• There are chapters on the Beauceron, Kareliao Bear Dog, Löwchen, Stouhi, Tervplier, and more. It all makes very interesting reading and provides useful information about rare and unusual breeds.

Eighteenth Annual Symposium

The Eighteenth Annual Symposium, Your Heroic Pet and Your Dogs, will be presented January 30, 1988, at the Veterinary Hospital of the University of Pennsylvania, Philadelphia.

During the day-long event, four faculty members will discuss canine medical topics. Dr. Betty Dayrell-Hart, lecturer in neurology, will discuss Common Canine Medical Topics. Dr. Betsy Dayrell-Hart, lecturer in neurology, will discuss Common Canine Medical Topics.

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If you are considering purchase of a dog, visit a breeder and see puppies and adults. Don't select a breed just because it is a conversation piece or something different. Be sure to consider the training which might be necessary. There are 130 breeds eligible for registration with the American Kennel Club, while over 300 breeds are recognized by the Federation Canine International, the governing body of dogs in much of Europe, Asia, and South America. This book gives excellent background material and can help the prospective owner study a breed and make an intelligent decision about whether it is a suitable one.

The Rare Breed Handbook by Dee Gannon (Golden Box Press, 22-02 Raphael St., Fairlawn, NJ 07401. $22.95). This is a loose-leaf book which should be most useful for judges. It contains standards for 50 rare breeds divided, as by the American Kennel Club, into seven groups—2 in Sporting, 9 in Hounds, 19 in Working, 3 in Terriers, 5 in Toys, 3 in Non-Sporting, and 9 in Herding.

A "Rare Breed" is defined as "A purebred dog which is not eligible for full registration with the American Kennel Club but which has a breed standard and is registered with a National or International Kennel Club." The book gives information on rare breeds shows, judging tips, and the U.S. Registry for each breed.

This is a good reference for those who have become involved in showing and judging rare breeds. It is a good beginning, and additions and changes probably will appear in future editions. A glossary would be helpful to define some terms used in the standards, but this really should be done by the standard-writers.

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Henry P. Schneider Dies

Dr. Henry P. Schneider (V'34) died at the age of 75. Dr. Schneider was director of biological research and chairman of the department of biomedical supporting services at Hahnemann Medical College, Philadelphia. He also served as professor of anatomy, physiology, and biophysics at Hahnemann until his retirement in 1982. Hahnemann University gave him professor emeritus status in 1984.

In addition to teaching and research at Hahnemann, Dr. Schneider maintained a general veterinary practice in the Gwynedd Valley-Spring House area from 1934 to 1989. Dr. Schneider served as president of the School's Alumni Association and as president of the Pennsylvania Veterinary Medical Association. In 1984, the School presented him with its Centennial Award of Merit. Dr. Schneider is survived by his wife, Catherine Schneider; daughters Barbara Simons, Harriet Zubar Day, and Suzanne; and six grandchildren.

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New Intensive Care Facility
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divided to house two foals each. Three are large enough to hold a mare and foal in separate side-by-side units. After the foal season, these stalls can be converted into extra large stalls for "down" horses. In foal season, there will be space for a total of seven foals and three mares. After foal season NICU provides space for five adults.

"All the floors in the stalls are padded with rubber for disease prevention and patient comfort," said Dr. Donawick. "Floors in the NICU are heated to provide extra warmth for the neonates." At the hub of the building is the central nurses' station, which permits continuous supervision of patients in both units. Stalls are equipped with piped-in oxygen, compressed air, and vacuum lines for treatment. This is also available in each of the two large treatment areas of SMICU and NICU. The stalls feature watering devices with meters to monitor water consumption by patients. The building has a special air-handling system for heating and air-conditioning, providing 10 air changes per hour.

"At a hospital we are always concerned about infections," said Dr. Donawick. "This can be particularly critical for the severely ill patient. To minimize the danger of infection, we have the special air-handling system. In addition, there is a high-pressure water-cleaning system and a manure removal system whereby manure from each unit will be dropped to the floor below for containerized removal. Also, at the entrance to the facility, there is a washing area where horses can be cleaned prior to entering the building, minimizing the danger of introducing bacteria. In addition to these precautions, access to the building will be limited, and clinicians and nurses will wear special protective clothing before entering the unit through an air lock.

Patients in SMICU and NICU will be treated by groups of veterinarians from different disciplines such as surgery, medicine, and anesthesia. Depending on the problem, input may also be sought from other staff specialists in nutrition, reproduction, etc. "This new facility will enable us to provide comprehensive care for the critically ill patient," said Dr. Donawick. "By housing these animals in one building, treatment can be delivered more efficiently. The close proximity to the C. Mahlon Kline Orthopedic and Rehabilitation Center and the monorail will enhance our ability to utilize the pool for water therapy and ease the cast removal procedures for orthopedic patients."

The Connelly Intensive Care Unit and the Graham French Neonatal Section may enable clinicians at Penn's School of Veterinary Medicine to push the boundaries of treatment further out, helping animals previously thought of as "hopeless." "We are continually trying to advance the level of sophisticated care," said Dr. Vaala. "This new building will allow us to consolidate the efforts of the various specialties here at New Bolton Center campus. These are exciting times in veterinary medicine; things are changing. Ten years ago, who would have thought of using a high-frequency ventilator or a computerized pump to deliver parenteral nutrition to a newborn foal? Now, we use such equipment routinely, and as this building is utilized, we will be employing more monitoring and diagnostic equipment, similar to that utilized in human ICUs."

The new $2.25-million building was funded by many people. The Connelly Foundation provided a large grant for the Connelly Intensive Care Unit, and Mrs. Anne French Thorington provided funds for the construction of the Graham French Neonatal Section, in memory of her father. Other contributors who helped to make the building a reality are Mr. and Mrs. Allen H. Carruth, Mrs. Roland T. de Hellebraut, Mr. and Mrs. Henry E. I. du Pont, the Estate of Mary Compton Carrington, Mr. Peter G. Gerry, Mrs. Gwynne Garbsich McDevitt, Mrs. Henry D. Paxton, Stewart R. Rockwell, D.V.M., Mr. and Mrs. Bayard Sharp, Mr. and Mrs. Oakleigh B. Thorne, Mrs. E. Miles Valentine, Alexandra Wetherill, V.M.D., and the Bergen County Horseman's Association.

Did You Know...?

Despite rumors to the contrary, recent changes in the tax laws have not eliminated all incentives for charitable giving. In fact, the IRS still permits donors of long-term appreciated securities to deduct the full, fair market value of an asset on the date it is given. The appreciated component is fully deductible under the 1986 Tax Reform Act, and there is no capital gains tax on the donated property (although appreciation is considered in calculating the Alternative Minimum Tax).

The benefit to philanthropists: donating appreciated assets may increase your giving ability to a considerably higher level. In particular, you may want to consider gifts of highly appreciated but low-yielding securities. This would allow you to take maximum advantage of the growth realized from the investment without surrendering significant income.

The following simplified calculations show the relative "cost" of an outright cash gift versus a gift of appreciated stock. (Assume the donor's cost basis in the stock is $4,000)

<table>
<thead>
<tr>
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<th>Cash</th>
<th>Stock</th>
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<tbody>
<tr>
<td>Gift to Veterinary School</td>
<td>$10,000</td>
<td>$10,000</td>
</tr>
<tr>
<td>Donor's Basis</td>
<td>10,000</td>
<td>4,000</td>
</tr>
<tr>
<td>Tax Savings from Charitable Deduction (@38.5%)</td>
<td>3,850</td>
<td>3,850</td>
</tr>
<tr>
<td>Net Cost of Gift</td>
<td>$6,150</td>
<td>$150</td>
</tr>
</tbody>
</table>

These last months of 1987 offer a special opportunity for those making charitable gifts. A deduction against today's relatively high income rates—38.5% maximum—will save you more than the same gift made after January 1, 1988, when the rate is due to drop to 28%.

The charitable deduction for a gift of appreciated securities is limited to 30% of a donor's adjusted gross income in the year the gift is made. However, you may carry over any unused portion of the deduction for up to five additional years.

For further information on the advantages of giving appreciated securities to the School of Veterinary Medicine, contact:
Mr. Jeffrey D. Roberts
Assistant Dean for Development and Planning
School of Veterinary Medicine
3800 Spruce Street
Philadelphia, PA 19104-6008
TEL: (215) 898-1882

Ground was broken for the Evan L. Stubbs Laboratory at New Bolton Center campus. Shown are Dr. Robert Eckroade, Dr. Richard McFeely, Dr. Evan L. Stubbs, Dr. Max van Buskirk, and Dr. Robert Marshak.
Dedication of New Intensive Care Facility

The new building, housing the Connelly Intensive Care Unit and the Graham French Neonatal Section, was dedicated on October 15 at New Bolton Center campus.

Dean Edwin J. Andrews, Mrs. Anne French Thorington, Miss Christine Connelly, University President Sheldon Hackney.
Dr. Robert R. Marshak and Robert H. Whitlock were recent recipients of the bronze medalion signifying membership in the National Academies of Practice during a meeting held in Washington in September. The National Academies of Practice have nine constituem groups within the health professions and will serve as a policy-making advisory group for the United States Congress.

Dr. Charles E. Benson, associate professor of microbiology, and Dr. Robert J. Eckmeade, associate professor of poultry pathology, gave presentations on research on salmonella in poultry to the Pennsylvania Poultry Service meeting in September.

Dr. Ellen Ziemer, lecturer in medicine, is now a Diplomate in the College of Veterinary Internal Medicine. She has also recently been named director of clinical laboratory medicine at New Bolton Center.

Dr. Lynne S. Frankhouser-Keller (V'92) received her Master of Science degree in Laboratory Animal Medicine from the Milton S. Hershey Medical Center, Pennsylvania State University, Hershey, PA. She is employed by Bristol-Myers Co. Wallingford, CT, as their laboratory animal veterinarian.

Dr. William Chatula, professor of nutrition, has been invited to serve on the Committee of Animal Nutrition of the Board of Agriculture, National Research Council.

Dr. Barry N. Biery, Susan Donohue, David Kronfeld, and Jeffrey A. Westman presented professional programs at the AAHA Northeast Regional Annual Meeting in December. Dr. Clough (V'69) was the program chair for the event, which presented four days of professional courses.

Dr. Dean Richardson, assistant professor of surgery, participated as a speaker at the 15th American College of Veterinary Surgeons' Chicago Surgical Forum.

Dr. William Moyer, associate professor of sports medicine, gave three presentations at the Ocala Equine conference in October.

Dr. Deborah V. Wilson, lecturer in anesthesiology, presented an abstract at the Annual Scientific Meeting of the A.C.V.A. in Atlanta, GA, in October.

Scholarships

Frederick D. Doddy, a third-year student, is the recipient of a scholarship by the Union County Kennel Club. Janet Crawford, a senior, is the recipient of a scholarship provided by the Westminster Kennel Foundation. The first recipient of the Janet F. Cotter Scholarship, established by the Princeton Small Animal Rescue League, is Lisa A. Macom, a first-year student. Michaela Mikovsky, a senior, received the Merck Company Foundation Scholarship.
1988 Penn Annual Conference

The 1988 Penn Annual Conference promises to be an exciting and informative event. A partial list of speakers includes:

Dr. James Becht  Diagnosis and Management of Acute Diarrhea in Foals and Adult Horses
Dr. Larry Bramlage  Equine Orthopedics
Dr. Colin Burrows  Current Topics in Feline Gastroenterology/Gastronential Pharmacotherapy
Dr. Martin Burton  Drug Therapies Membranes in Cows
Dr. Paul Greenough  Contemporary Concepts in Bovine Lameness
Dr. Gail Kunske  Topics in Dermatology
Dr. Horst Leipold  Congenital and Hereditary Defects in Cows/Hereditary Defects in Horses
Dr. Dennis McCurnin  Practice and People/Practice Management
Mrs. Katherine McKeeve  Oat Behavior
Dr. Al Metzen  Robert R. Marshak, D.V.M. Seminar in Bovine Medicine
Dr. Marvin Olmsted  Pathophysiology and Treatment of Canine Hip Dysplasia with Emphasis on Total Hip Replacement
Dr. Ralph Redden  Management of Laminitis in the Horse
Dr. Peter Schwarz  Surgical Oncology/Challenges with Practical Solutions
Dr. H. Fred Trout  Robert R. Marshak, D.V.M. Seminar in Bovine Medicine
Dr. Edwin Workman, Jr.  Advances in Immunodiagnostic Technology

The Conference will be held on Wednesday, January 27, and Thursday, January 28, 1988, at the Adam's Mark Hotel in Philadelphia.

On Tuesday, January 26, a dinner and roast in honor of Dr. Robert Marshak will be hosted by Roger Caras. Friends, faculty, and alumni will be on hand to salute the achievements of Dr. Marshak. For further information call; (215) 898-4234.

Second Annual Parents/Partners Day

As in all professional training, a veterinary medical education is rigorous and demanding. At Penn, we believe that a supportive and understanding family is essential to the well-being of our students. To answer this need, an annual Parents/Partners Day has been developed to help family members learn more about the many aspects of the Veterinary School and the education we provide.

On Saturday, September 19, 121 family members of the Class of 1991 learned about a variety of subjects affecting our students, including; the curriculum, student financial aid, the human-animal bond, and the issue of animal research. Following a tour of the Veterinary Hospital of the University of Pennsylvania and lunch, buses departed for New Bolton Center for an overview of our large animal facility.

Dean Edwin Andrews joined with students, parents, partners, and faculty for a social hour at the close of the day.

ALUMNI SUPPORT IS ESSENTIAL FOR THE WELL-BEING OF OUR SCHOOL!!

If you are a graduate of the School and are interested in becoming involved, please call Ashra Markowitz, Assistant Director of Development, at (215) 898-4234 or drop a note to Dr. Lawrence Gerson, President, Veterinary Medical Alumni Society, University of Pennsylvania, School of Veterinary Medicine, 3800 Spruce Street, Philadelphia, PA 19104-6008.
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Editor: Helma Weeks
Writers: Helma Weeks
Drs. M. Josephine Deubler (Animal Crackers)
Illustrator: Marie Garofano
Photographers: Adam Gordon
Lynne R. Klunder
New Bolton Liaison: Catherine Larmore

We’d like to hear your praise, criticisms, or comments. Please address your correspondence to:
Helma Weeks, University of Pennsylvania, School of Veterinary Medicine, 3800 Spruce Street, Philadelphia, PA 19104-6010
(215) 898-1475
or Linda Fischer, University of Pennsylvania, Office of University Relations, 410 Logan Hall, Philadelphia, PA 19104-6387

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