



1-1-1985

Advancements in the Treatment of Aspergillosis

Helma Weeks
University of Pennsylvania

Rosettes & Ribbons

The Aquavet II program, under the direction of Donald A. Abt (V'61), has received a \$16,459 grant from the Island Foundation, to fund the program.

Dr. Alan M. Beck and Dr. Aaron Katcher of the Center for the Interaction of Animals and Society have been awarded \$49,423 by the Ralston-Purina Company to study human/cat interactions, including laboratory studies of human interactional behavior with cats and field studies in the homes of people who own more than one cat.

The two researchers also received a \$31,900 grant from the Pet Industry Joint Advisory Council to continue and expand their studies of fish and other exotic animal companion animals and to begin preliminary studies on the value of animals with aphasic elderly.

Dr. Beck and Dr. Katcher presented papers at the Conference of the Delta Society in October in Denver, CO. Here Dr. Katcher was awarded the Delta Distinguished Service Award. The Delta Awards for excellence are sponsored by Hill's Pet Products, Inc., of Topeka, KS.

Dr. David K. Detweiler (V'42), professor of physiology, attended the Second National Symposium on Comparative Electrocardiology at Syktyvkar, Komi Republic, USSR. Dr. Detweiler was a guest of the USSR Academy of Science, which sponsored the symposium in September.

Dr. Detweiler has been named the chairman of the Institutional Animal Care and Use Committee of the University of Pennsylvania.

Dr. Lawrence Glickman (V'72), associate professor of epidemiology and Chief, Section of epidemiology, presented a paper, "Antibiotics in Animal Feeds and Human Disease: A Cause for Concern?," at the fourth annual meeting of the American College of Epidemiology in September at Santa Monica, CA. The co-author of the paper was Micheal Osterhold, Ph.D.

Mary Beth Harmorsky, a junior student, is the recipient of a scholarship by the Amlan Foundation. This scholarship is offered each year to a student with a strong background and interest in equine medicine.

Dr. Paul H. Langner (V'66) has been appointed University Veterinarian and Director of the Animal Research Facility at the University of South Carolina.

Dr. Martin Sevoian (V'53), professor of Veterinary and Animal Science at the University of Massachusetts at Amherst, has been recognized for his published research which was noted as a "citation classic" in the January issue of *Current Contents*.

Dr. Colin E. Harvey, professor of surgery, presented a paper on "Oral Diseases in Aging Animals" and a seminar on "Diagnosis and Management of Nasal Diseases" at the World Small Animal Congress in November in Tokyo, Japan.

Dr. Hugh Bilson Lewis, adjunct professor of laboratory animal medicine, has been named dean of the School of Veterinary Medicine of Purdue University.

Joan C. Hendricks (V'79), assistant professor of medicine, received funds from Penn's internal research fund to study "Pontine Lesions and State-related Respiration." Drs. Corinne R. Sweeney, Raymond W. Sweeney (V'82), and Lawrence R. Soma (V'57) received a grant from the same fund to study "Metronidazole: Pharmacokinetics in the Horse after Oral and Intravenous Administration."

Dr. Jeffrey Wortman (V'69), assistant professor of radiology, Dr. Richard R. Miselis (V'73), associate professor of anatomy, and Dr. Sheldon R. Steinberg (V'59), professor and Chief of neurology, have received a \$7,800 grant from the Merck Company Foundation for the development of microcomputer based, three-dimensional reconstruction programs for use in teaching anatomy.

Dr. Helen M. Acland has been promoted to associate professor of pathology. Dr. Jill Beech (V'72) has been promoted to associate professor of medicine in Clinical Studies at New Bolton Center. Dr. Thomas J. Divers is acting Head of Clinical Studies at New Bolton Center, and he has been promoted to associate professor in Clinical Studies at New Bolton Center. Dr. Roselyn J. Eisenberg has been promoted to professor of microbiology in pathobiology, and Dr. Colin Johnstone has been promoted to associate professor of parasitology in epidemiology and health economics in Clinical Studies at New Bolton Center. Dr. William Moyer is associate professor of sports medicine in Clinical Studies at New Bolton Center.

Advances in the Treatment of Aspergillosis

The environment is filled with microorganisms invisible to the naked eye. One of these is *Aspergillus*, an airborne fungus. Usually *Aspergillus* is harmless. It is inhaled and nothing happens. However, to individuals who are immunosuppressed because of an organ transplant, chemotherapy or disease, it can be lethal. *Aspergillus* also affects some dogs by causing an inflammation of the nasal passages. The fungus may cause disease in poultry and other avian species as well as in horses, wildlife and other animals.

"The fungus is everywhere," said Dr. Nicholas J. H. Sharp, a researcher at the School of Veterinary Medicine, University of Pennsylvania. "The mold which develops on vegetables and other foods is *Aspergillus*, and it is also found in moldy hay." In a small number of dogs this fungus begins to grow in the nasal passages, causing an acute or chronic rhinitis. The first symptoms noticed usually are sneezing, nasal pain and a discharge which becomes more copious and purulent as the disease progresses. Often the animal will have nosebleeds which can be severe.

Diagnosis is made by radiographic, endo-



Aspergillus.

scopic and microscopic examination. The disease can also be diagnosed serologically. An ELISA test for the condition can be performed here at the School. The definitive diagnosis of aspergillosis is important as nasal tumors can present the same symptoms of nasal discharge and bleeding.

"*Aspergillus* grows in the nose and the

sinuses," Dr. Sharp said. "It destroys the turbinates, a network of fine bones in the nose. If the infection occurs around a major bloodvessel in the nose, it weakens its wall and prolonged bleeding can result. Dogs can lose a lot of blood in this way." He explained that in horses the organism can grow around the carotid artery as it lies in the guttural pouch, which is an enlargement of the horse's eustachian tube. "Horses have bled to death in 10 to 15 minutes when the artery ruptures due to a weakening caused by the fungus."

Aspergillosis is not a common disease in dogs. "We don't know why certain dogs get it," Dr. Sharp said. "It appears that breeds with longer muzzles are more affected. In all the cases reported only one short-faced dog has been mentioned, a boxer. In addition, one bulldog with the disease has been seen at VHUP. All the other cases were in mesocephalic or dolichocephalic breeds."

Canine aspergillosis, first described in 1905, is very difficult to treat. "Many of the early antifungal drugs were quite toxic," explained Dr. Sharp. "The drugs currently available are only effective in less than half the cases treated." Dr. Sharp, together with Dr. Colin E. Harvey and Dr. Joan A. O'Brien, professors of surgery and medicine at the School, are now investigating the efficacy of two new drugs. The hope is that

Dr. Lawrence Soma (V'57), professor of anesthesia, received a grant from the Grayson Foundation to study "High frequency positive pressure ventilation in the horse." The goal of the study is to develop more effective and efficient methods of delivering oxygen and removing carbon dioxide from horses under anesthesia and newborn foals in intensive care.

Eric Smith, a senior student, is the recipient of the Joseph S. A. Millar Memorial Scholarship awarded by the New Jersey Veterinary Education Foundation.

SmithKline Beckman Company dedicated Scheidy Laboratories, a new research facility honoring SmithKline's longtime Veterinary Medical Director, Dr. Samuel Scheidy (V'29), in June at the company's Applebrook Research Center near Philadelphia. Mrs. Hennette Scheidy, Dr. Scheidy's widow, was honored guest at the dedication.



Pictured during dedication ceremonies of Scheidy Laboratories at Applebrook Research Center are (left to right): Dr. Brian Bagnall, director, Applebrook Research Center; Mrs. Hennette Scheidy (widow of Dr. Sam Scheidy); and Mr. Norman H. Blanchard, president, SmithKline Animal Health Products.

The Penn Animal Leash holder, designed by Dr. James Buchanan, professor of medicine (cardiology), has received patent number Des. 277,055, issued January 8, 1985. The PAL holder is one of the many unique features at VHUP. The holder, made of tempered stainless steel, is not rebendable; 65 have been in daily use at VHUP without deformation. The device is easy to install. PAL holders are available with a donation of \$10 (or 3/\$25). Make checks payable to VHUP Heart Fund - JB and send the order to Dr. J. Buchanan, VHUP, 3850 Spruce Street, Philadelphia, PA 19104-6010.

Robert Sigafos, the farrier at New Bolton Center, received a grant of \$12,448.96 from Cyrus Rickel, Colorado Springs, CO, to develop a protective, supportive and cushioning boot for horses with laminitis, and the modification of this boot for other applications.

Barry J. Stupine, associate dean for administration, Small Animal Hospital, reported the results of a recent VHUP client survey conducted every three months. The group of clients, selected randomly, represent 5% of the total clients seen in a three months period. They were contacted by phone and asked 23 questions. In the most recent survey, 97% made favorable responses to questions about VHUP, though 21% complained that they could not find the hospital. Barry Stupine hopes to have a more obvious sign at the Spruce Street entrance so that this problem can be eliminated.

Lawrence J. Gerson, V.M.D., has been named "Veterinarian of the Year" by the Pennsylvania Veterinary Medical Association during the Annual Meeting at Host Farms in Lancaster, Pa. Dr. Gerson is a 1975 graduate of the University of Pennsylvania School of Veterinary Medicine and serves as Second Vice President on the School's Veterinary Medical Alumni Society Executive Board. Dr. Gerson is also active in the Western Pennsylvania Veterinary Medical Association as well as other professional organizations.

Dr. Lynn Lawrence (V'64) has been promoted to Director of Medical Services for the two Long Island facilities of the Bide-A-Wee-Home Association, a nonprofit animal welfare organization.

Dr. M. Josephine Deubler (V'38) has been nominated in the Outstanding Contributions category for the Kennel Review Awards.

Dr. Alan M. Klide (V'65), associate professor of anesthesia, spoke on acupuncture at the American Horse Council meeting in June in Washington, D.C.

Dr. David Kritchevsky, Wistar Professor of biochemistry, has been appointed to the Board of Directors of the Philadelphia Division of the American Cancer Society.

Peter A'Zary, a senior student, is the recipient of a scholarship award from the Pocono Mountain Kennel Club.

Patricia Jackson, a junior student, is the recipient of the scholarship award made by the Union County Kennel Club.

Dr. Stephen P. Schiffer, director of Laboratory Animal Medicine, was certified as a Diplomate of the American College of Laboratory Animal Medicine.

Dr. Gerhard Schad, professor of parasitology, participated in a symposium on "Evidence for Parasitic Hypobiosis" at the University of Georgia in August. Dr. Schad delivered a paper on "Parasites in Humans."

James Jeffers, a senior student, is the recipient of a \$2,000 scholarship from the Merck Company Foundation. A Scholarship of \$725 from the Foundation was awarded to Linda Stahle, also a senior student.

Michele M. April (V'80) is a staff veterinarian on the Veterinary Biologics staff, Veterinary Services, APHIS, USDA in Hyattsville, MD. In April 1984, she was elected to the Gamma Chapter of the Society of Phi Zeta.

these will prove to be more effective than two drugs previously studied by these researchers.

In a recent study conducted by Dr. Harvey, it was shown that only 43% of the dogs treated for aspergillosis improved or were clinically normal six months after treatment. Dr. Harvey examined the records of 47 dogs treated for the disease at the School between 1978 and 1981. Follow-up information was obtained from the owners by telephone.

These dogs had received thiabendazole, an antifungal drug, orally for six weeks. In 26 animals, surgery had been performed to remove the affected turbinates. Of these, 19 were treated with nasal flushes of thiabendazole for a number of days. The nasal cavities of dogs not treated surgically were flushed with a water-diluted solution of povidone-iodine. Thiabendazole was administered daily to all dogs studied. There were side effects: 50% of the dogs had reduced appetite when the drug was first given; in 25% vomiting or diarrhea was seen as well. When the drug was withdrawn and then gradually reintroduced, the side effects ceased in these animals.

Dr. Harvey discovered that, contrary to previously published reports, the combined regimen of surgery and drug therapy did not improve the results of treatment. He found that animals treated solely with the drug responded

better. It is not known why this was the case; however, it may be possible that the debilitating and immunosuppressive effect of surgery and general anesthesia was responsible. It has been found that some dogs with aspergillosis have an abnormal immune system.

Dr. Sharp conducted a study at the University of Liverpool Veterinary School, examining the efficacy of ketoconazole, a more recent antifungal drug. Fifteen dogs diagnosed with aspergillosis were treated with the drug, administered orally for up to 18 weeks. There were few side effects. Six months after treatment 47% of these dogs were clinically normal or considerably improved and were classified as free from evidence of fungal infection. This success rate is similar to Dr. Harvey's findings. "Ketoconazole is a useful treatment for canine nasal aspergillosis," Dr. Sharp said, "but it is no more effective than thiabendazole."

Dr. Sharp, Dr. Harvey, and Dr. O'Brien are now investigating the efficacy of fluconazole, a new antifungal oral medication. "The study is supported by the drug company, and we would like to see more dogs with aspergillosis," he said.

Another drug being investigated by the researchers is enilconazole, a topical drug. "We used it at the University of Liverpool on five dogs and cured them," he said. "Here it has

been used on two dogs successfully." It is a topical drug, and the dog's nasal passages are flushed with it twice a day. "For this treatment the dog should be hospitalized. A tube is inserted into the sinuses and left in place for two weeks. It would be difficult for the owner to handle the twice daily flushing. The drug enilconazole is promising, but we have to treat more cases to determine its real efficacy against *Aspergillus*."

Practitioners who suspect aspergillosis in a patient can send a blood sample to Dr. Sharp for the ELISA test. Once the disease is diagnosed, the animal could be included in the study. "Aspergillosis, while not a common disease of dogs, can be devastating because it is so difficult to treat," said Dr. Sharp. "In the past, many dogs were euthanized as the disease progressed. We hope that our studies can identify a more effective drug and a better regimen." Practitioners who have patients with the disease can contact Dr. Sharp, Dr. O'Brien, or Dr. Harvey at the School of Veterinary Medicine, University of Pennsylvania, 38th and Spruce Streets, Philadelphia, PA 19104-6010, for additional information about the research.

Dr. Sharp is an assistant professor in soft tissue surgery at the University of Liverpool. He is on a one-year leave of absence to do research and surgery here at the School. H. W.