

Veterinary Viewpoints

THE EQUINE ATHLETE Pages 4 & 5

Fall 1982

Number Eighteen

The New York State College of Veterinary Medicine

at Cornell University

AQUAVET COLLECTING TRIP

Supporting Aquatic Veterinary Medicine

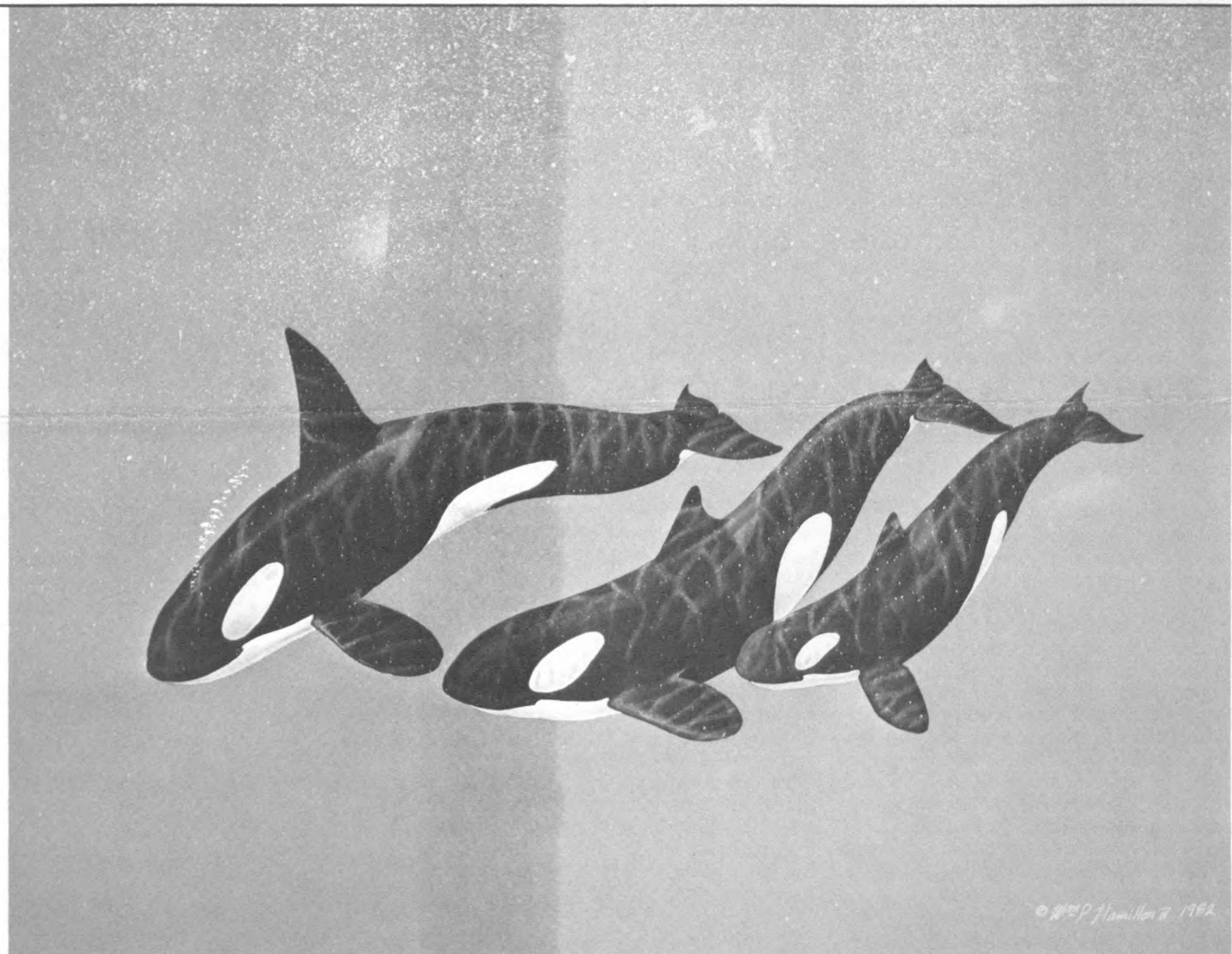
By Bruce M. Kantrowitz
New York Sea Grant Institute

It may have looked like an idle stroll along the beach, but a beach collecting trip was the first step of the scientific process for a group of 32 veterinarian students enrolled in the month-long Aquavet program. This was the sixth year for the program. Launched and supported through infancy by the New York Sea Grant Institute, the Aquavet program has become a summer institution in Woods Hole, MA. Dr. Charles Rickard, Associate Dean of the New York State College of Veterinary Medicine and Professor of Veterinary Pathology and Avian & Aquatic Medicine, is associate director of Aquavet. Dr. Donald Abt, from the University of Pennsylvania is director of the program.

When a scientist wants to ask a research question, he phrases it in experimental design and then starts collecting samples that he or she can observe or measure to provide the answer. The Aquavet students—or "Aquavets" as they are called—learn to apply this process by collecting and observing communities of sea plants and animals, including moon snails, starfish, anemones, algae and mussels.

During the month-long program, the Aquavets receive a wide array of information and experiences—on topics from aquariums and fish nutrition to pollution-associated diseases and aquatic animal behavior.

The students conclude their summer's sampling with a rare opportunity to learn about marine mammals. Under the Marine Mammals Protection Act, the federal government outlaws touching any marine mammal, living or dead, in the water or beached. Specific institutions, including the New England Aquarium, have been assigned responsibility for collecting, studying and reporting on the animals. Students in the program observe and assist two pathologists authorized to dissect beached mammals collected by the New England Aquarium. This year, they had the opportunity to work with harbor seals and dolphins. Ac-



"Orca Family" by William P. Hamilton IV

According to Dr. Rickard, these solitary beached animals were usually sick and students find parasites and diagnose pneumonia in most specimens. Mass beachings, though still a puzzle, seem to be psychologically motivated.

This year, as always, the Aquavet program was well stocked with lecturers from the Cornell community. Dr. Howard Evans, Professor of Anatomy, led discussions and analyses on comparative anatomy and taxonomy of the aquatic animals. Dr. John Timoney, Associate Professor of Microbiology, presented microbiology and public health to the Aquavets, emphasizing the various forms of poisoning from eating fish. Dr. Louis Leibovitz, Associate Professor of

Avian & Aquatic Medicine, discussed the shellfish industry, emphasizing Long Island, NY hatcheries and shellfish diseases. Dr. Leibovitz is director of the new Laboratory for Marine Animal Health. He initiated the Fish Diagnostic Laboratory at Cornell several years ago and has worked extensively with the shellfish industry.

Dr. John Kingsbury, Professor in both the Colleges' Veterinary Clinical Sciences and the College of Agriculture and Life Sciences, gave a history of the Woods Hole scientific community and then discussed aquatic plant life, algae in particular.

Dr. Hugh Posten discussed basic fish nutrition and finfish aquaculture. Dr. Posten

is from the Tunison Laboratory and holds a joint appointment at Cornell.

The Aquavet program has been just one of a collection of Sea Grant research, education and outreach programs. Many have involved Cornell faculty from the New York State College of Veterinary Medicine. New York Sea Grant—the joint venture of Cornell University and the State University of New York, is set up to collect questions from the people who use our water resources, collect scientists to research the questions and then collect the answers for those who need to know.

AQUAVET

By Charles G. Rickard, DVM
Associate Dean

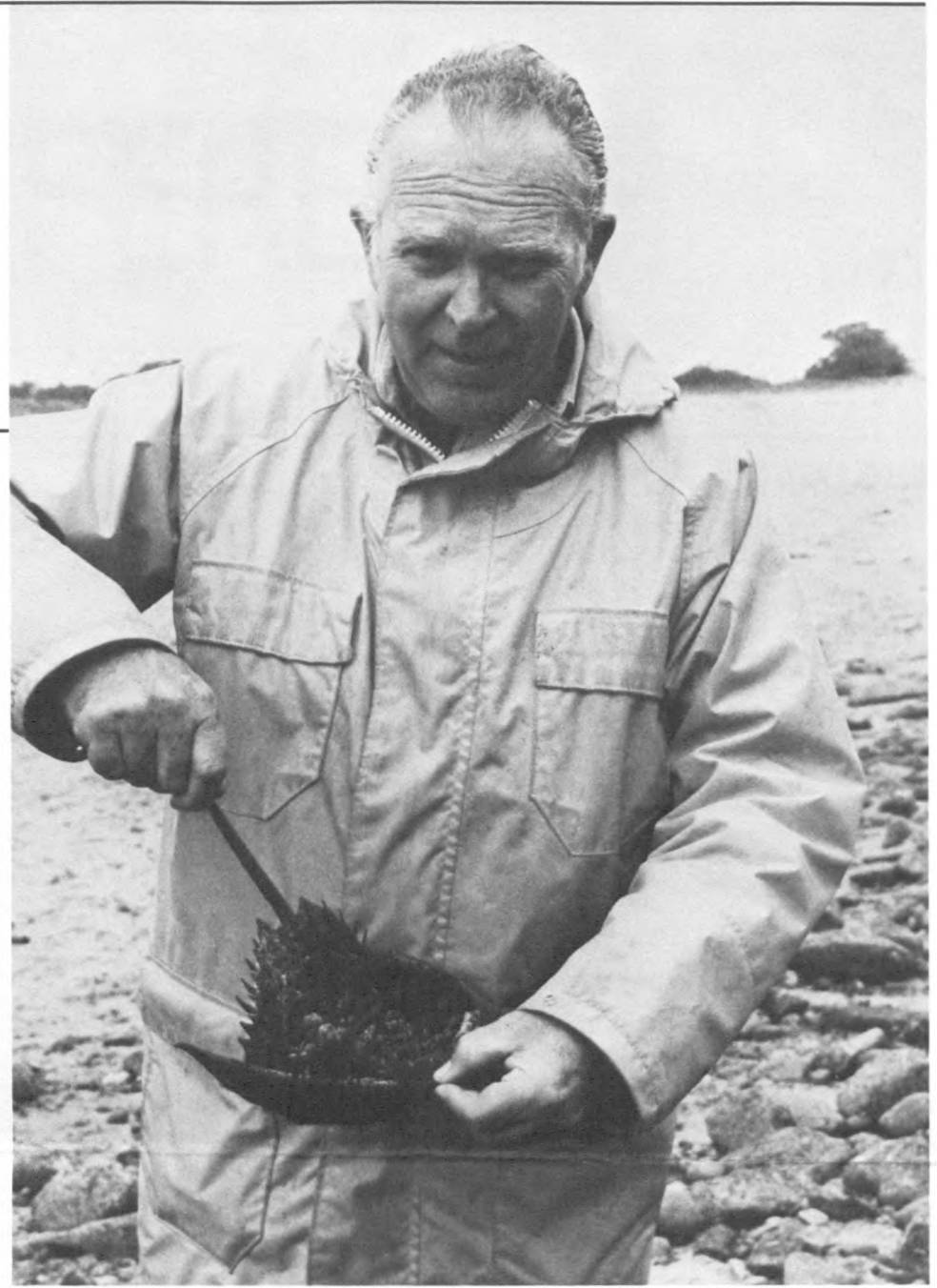
The Aquavet program completed its sixth year in 1982, bringing another class of 32 students to the Marine Biological Laboratory in Woods Hole, Mass. Among them were two veterinarians from Cornell classes of '63 and '77, eight current veterinary medical students from Cornell and eight from the University of Pennsylvania, and students from nine additional Colleges of Veterinary Medicine. Sixteen home states were represented. Among the 40 faculty members who came and went during the 4-week instructional period of the basic course, six were from Cornell. Thus the program continues at a high level of interest, and with participation on a national (occasionally international) basis.

By now significant numbers of graduates of the course have completed their studies in schools of veterinary medicine, and are beginning to answer the question of whether there are career opportunities in aquatic animal veterinary medicine. Although information on current professional status is incomplete, we know of several former Aquavet students who are engaged in the practice of veterinary medicine on aquatic species, especially aquarium fish, three who are on the faculties of schools of veterinary medicine, and several who are in postgraduate training in the field of aquatic animal medicine. Many, of course, are still in veterinary school and others have disappeared from our view. A start has been made. We believe aquatic veterinary medicine is emerging as a specialty to serve aquaculture (an industry which had an uncertain start in this country, but is now expanding), aquarium fish, research interests as a part of laboratory animal medicine, marine mammals, industry, and agencies which deal with public health and the environment.

What is new with Aquavet? Two significant developments have taken place re-

cently. Funds have been obtained to expand the coursework into Aquavet II. For several years, students have asked about what might be available after they have taken the basic course. Now plans can develop for a series of more specific courses, targeted on selected areas of aquatic animal health. Suggested topics include diseases of trout, diseases of catfish, marine mammal medicine, health care in aquatic animal colonies maintained for research, use of aquatic species in industry for testing and product development, comparative parasitology of aquatic species, aquatic animal behavior, histopathology of aquatic animal diseases, etc. The list extends far beyond the financial support currently available. However, the long-range plans laid several years ago for Aquavet II appear now to be moving toward implementation.

Another event of a year ago has demonstrated its relevance to Aquavet. As announced in an earlier issue of VETERINARY VIEWPOINTS, the Laboratory for Marine Animal Health was established at the Marine Biological Laboratory at Woods Hole, as a year-round facility, under the direction of Dr. Louis Leibovitz. This development provides diagnostic services for all those researchers in the Woods Hole community who maintain colonies of aquatic animals. Dr. Leibovitz also is conducting research on several specific health problems, and participates in the development of standardized stocks of certain aquatic species for research purposes. This Laboratory is a rich resource of information for students while they are taking the Aquavet course. In addition, several have spent an additional two months during the summer, either working at Dr. Leibovitz' laboratory or at other research laboratories in the community. The Laboratory for Marine Animal Health provides Aquavet students an experience in diagnostic and research methods, and a source of information on current disease problems and how they are handled by present-day practices.



Dr. Charles G. Rickard, Associate Director of Aquavet



Aquavet students on a collecting trip

VETERINARY VIEWPOINTS

Veterinary Viewpoints is published four times a year for friends and alumni of the New York State College of Veterinary Medicine, a Statutory College of the State University of New York. Correspondence may be addressed to Karen Redmond, Editor, Schurman Hall, New York State College of Veterinary Medicine, Cornell University, Ithaca, New York 14853. Telephone: 607/256-7699.

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THE DVM DEBT

Four years ago, Dan graduated from college with a B.S. and \$2,500 in school loans. He then applied to the DVM program, was accepted, and worked hard for another four years. He will graduate next spring with his professional degree . . . and nearly \$70,000 in debts. He will begin to repay these debts at a time in his professional career when he is starting a practice and without the benefit of the hefty earnings of his human medicine counterpart. How did Dan land in these financially troubled waters?

First, the cost of being a student (tuition, fees, books, room & board, and personal expenses) increased from \$9,520 per year in 1979 to \$12,700 in 1982-83. (New York State residents paid slightly less for tuition than out-of-state students.) Secondly, Dan is a student from Rhode Island, a state that contracts with the New York State College of Veterinary Medicine to allocate spaces in each first year class to Rhode Island residents. Unlike most such states, Rhode Island requires that the \$10,000+ they invest each year be paid back after graduation—up to 75% repayment if the student returns to private practice in R.I., and 100% if Dan decides to practice in another state. All-in-all, with undergraduate loans, student loans and interest charges, Dan will start practice deeply in debt.

Admittedly, this example is at one end of the financial spectrum. On the other extreme are those students who are fortunate enough to finish their professional program with no debts. But in 1983, it will not be unusual for students to graduate from the New York State College of Veterinary Medicine with an educational indebtedness greater than \$30,000. Estimates indicate that this figure may well double in a few years.

Where the \$\$\$\$\$ Come From

In 1981-82, 205 of the 318 New York State College of Veterinary Medicine students applied for financial aid and 193 had unmet financial needs which totalled \$1,402,355. A national need-analysis service was used to estimate whether the family resources available for educational expenses would cover the standard budget. Loans and student earnings helped fill 89% of the financial needs for 1981, while grants and scholarships filled only 11% of the needs.

Students may be eligible for the Guaranteed Student Loan Program (GSL) or Auxiliary Loans to Assist Students (ALAS), the Health Professions Student Loan (HP) or the National Direct Student Loan (NDSL). Students fill most of their financial need from these sources which offer loans repayable within 10 years after graduation, some with subsidized interest and others with partially subsidized interest. For ex-

ample, Dan will pay back the \$10,000+/year that Rhode Island contributes as a contract state, at 7% interest. Higher interest rates are common, typically 14% on some student loans. The Health Education Assistance Loan Program requires compound interest at current market loan rates (current quarter interest: 14.5%) plus 3.5%.

Some College loans (non-federal programs) are available, but the amounts are very limited and are usually used to supplement loans from other programs. They do not have a guarantee feature in case of death, disability or default.

It should be noted that despite a high degree of indebtedness, default is extremely rare among graduates of the New York State College of Veterinary Medicine.

Some sources of non-repayable monies are available for students at the College, and include TAP (New York State Tuition Assistance Program) grants of \$600 per year maximum; New York State Regents Scholarships for veterinary medicine awarded annually to 10 members of the incoming class; Cornell University grants based primarily on need and Veterinary College Scholarships totalling approximately \$85,000 per year and awarded on the basis of scholastic standing and financial need.

A few students are employed under the College Work-Study Program, or hold outside jobs on a part-time basis during the academic year. However, the curriculum is so demanding that most students elect not to be employed. The majority of students choose to work summers and holidays as an alternative.

Where did the \$\$\$\$\$ Go?

In recent years, federal support of higher education has been diminishing, and federal financial aid sources reflect this trend. The expectation of many in Congress, the State Legislature and certain agencies is that the student can and should assume a greater proportion of his or her own educational costs by borrowing against future earnings as necessary. Veterinary students are no longer eligible for Health Profession Scholarships and the National Health Service Corps Scholarships, and existing loan programs are becoming less available and more expensive.

Donor \$\$\$\$\$

At the New York State College of Veterinary Medicine, certain existing student loan funds are being invested and their earnings, along with other new gifts, are being used to establish loan/scholarship funds. The generosity of donors also makes available four types of scholarships or grants at the College: Endowed, Partially Endowed, Repeating Annual and Single Awards. Endowed Scholarships of \$10,000 or more provide an annual income in the name of

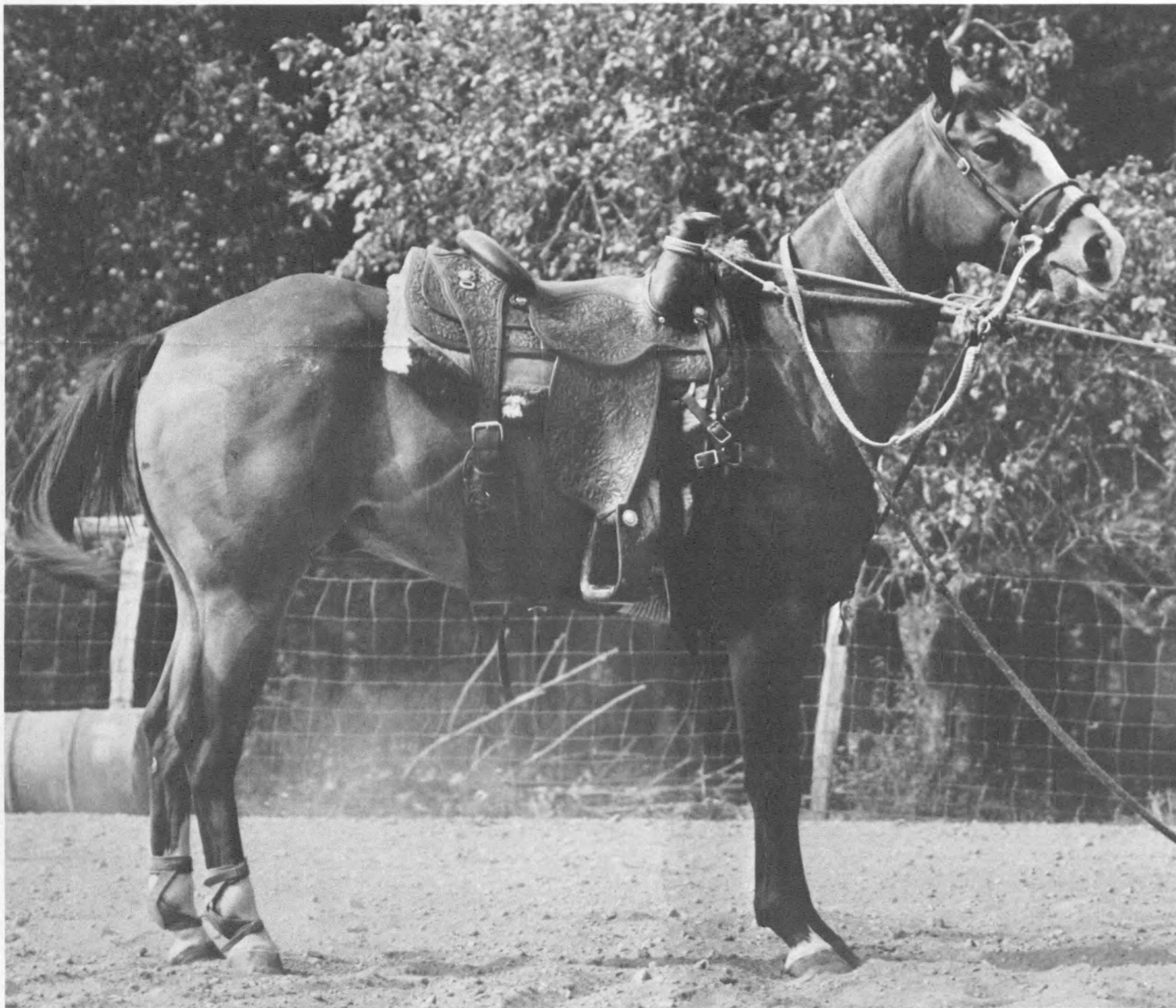
the donor according to selection criteria established in consultation with the donor. Partially Endowed Scholarships may be started with gifts of \$1,000 or more and when a total of \$2,000 is given, annual awards may begin in accordance with the donor's criteria. These become Endowed Scholarships when the principal reaches \$10,000. Repeating Annual Awards are given by organizations or individuals for more than one year. Single Awards may be donated and may range from modest to quite sizeable amounts. The College's

Scholarship Committee takes particular care to maintain donor identity with a grant or scholarship and to fulfill selection criteria. Donors are recognized annually in the Scholarship Award brochure and in special award ceremonies.

As the economic picture shifts, it is important that financial aid and gift sources remain flexible and broad based. Additional scholarships and loan assistance must be generated continually. Lack of financial aid should not stop any otherwise qualified student from obtaining a veterinary degree.



Chris Mullen, President/Cornell Rodeo Club



THE EQUINE ATHLETE

Pick a winner. Pick the horse with the heart, heredity and training to win the Travers Stakes or a barrel race. Breeders cross their fingers and hope for the best foal possible. Trainers agonize over the first crop of yearlings. Which one will be a winner? Even with the help of computer-tallied race results and genealogies, picking a winner is still anyone's guess.

In the field of human athletics, most of the guesswork has been eliminated thanks to scientific research. Athletes are weighed, measured, stressed, tested, pushed, prodded, metered, brain-scanned and x-rayed. How, what, when and why they breathe, eat, exercise, fatigue and succeed has been studied with gratifying results. In 1864, a man's fastest mile was timed at 4:56. Today's top athletes routinely run the mile a

minute faster. Man has improved on man's performance.

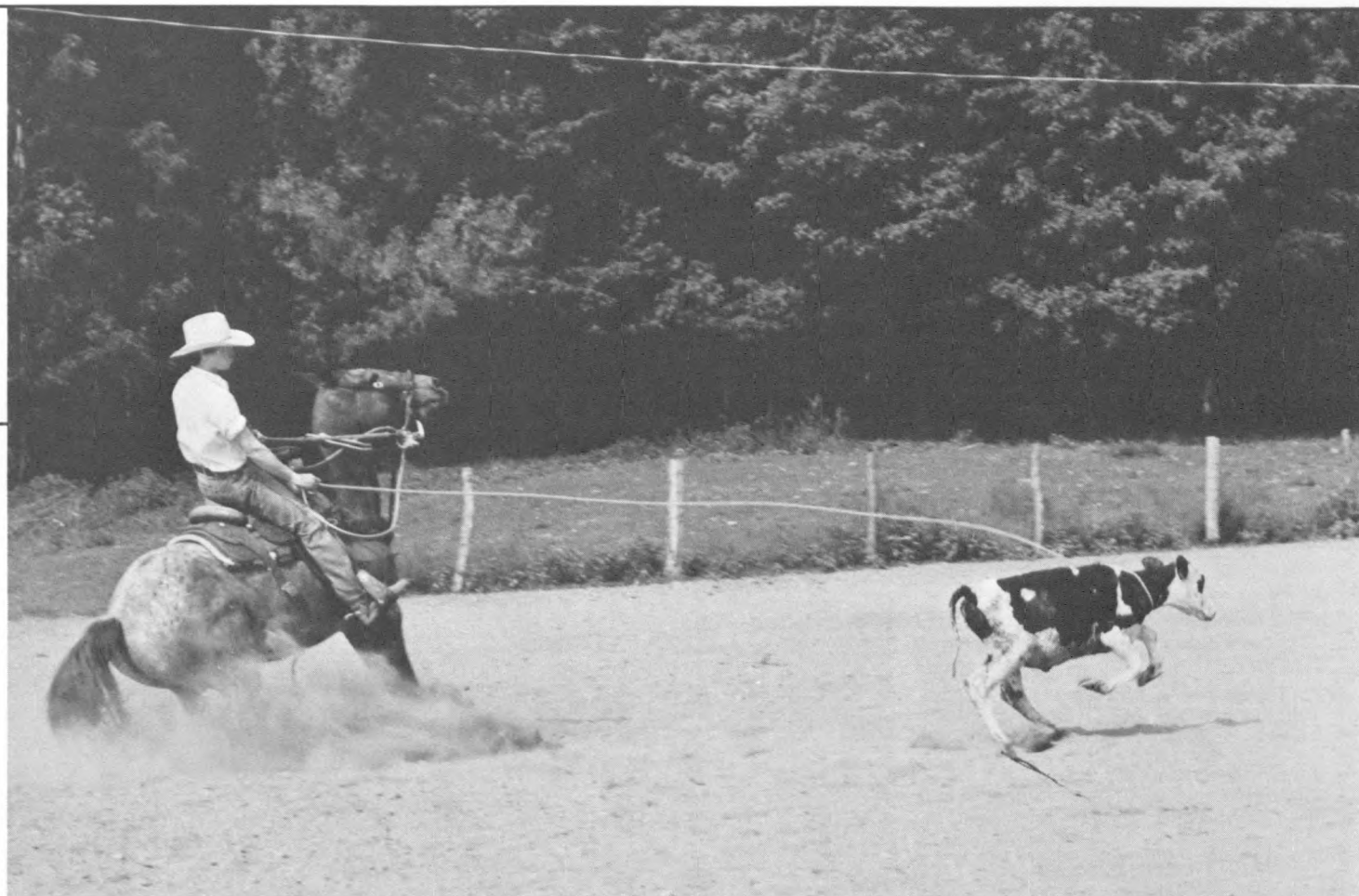
Can man improve on equine athletes in the same way? Dr. G. Frederick Fregin, Director of the Equine Research Program at the New York State College of Veterinary Medicine, is hopeful that equine athletes can also benefit from study and show the marked improvement in performance experienced by their human counterparts.

In 1981, the Equine Sports Medicine Program was begun at Cornell University to meet the needs of the equine athlete. A major aim of the program is improvement in performance. Performance, however, hinges on the health and soundness of the animal and consequently, the program also seeks a better understanding of the subtle warning signs of fatigue, over-training, or other stresses that predispose an athlete to injury. Major areas of study involve exercise physiology, respiratory function and locomotion.

EXERCISE PHYSIOLOGY

A tethered horse swims in a pool for ten minutes and emerges exhausted. A trotter glides around the track for twenty minutes. Who had the better work-out? Which horse will be in better condition? A small, portable meter on the horse gives the answer. From a resting heart rate of 32 beats per minute, heart rates in excess of 220 beats per minute may be measured by means of this meter and radio-telemetry. Heart rate read-outs transmitted during the exercise will record the horse's response to the work-out. Aerobic fitness studies in human athletes have determined the range of heart rates below which there is no significant training effect and above which further stress increases the risk of injury. Similar guidelines for heart rate should be determined for the horse. Training studies in the horse have, however, demonstrated a decrease in heart rate and blood pressure at a given work-load after conditioning. At the same time, an increase in the volume of blood pumped with each beat of the heart maintains the high cardiac output needed to meet the increased demands of exercise. The better conditioned horse will perform the same task at a lower heart rate but with greater pumping efficiency than the less fit horse.

It has been shown that the skeletal muscle of the horse, like that of man, can be classified into different fibre types. The composition of the individual's muscle



fibre, into fast twitch or slow twitch, may determine if the horse is a "sprinter" or a "stayer". A relatively new area of study it is not known with certainty if the muscle fibre type is inherited or whether training can change composition.

racine for six months following a single incidence of pulmonary hemorrhage, and for life after a second episode. While certain medications seem to be effective, there is no scientific evidence to support treatment. Further studies, including field work at racetracks, are being designed to determine etiologic mechanisms and to devise measures for prevention and therapy.

RESPIRATORY FUNCTION

To the beginning jogger, a run of a mile or more can be the pure torture of quivering leg muscles and aching lungs. How well you run is determined in part by the maximal amount of oxygen that can be carried from the lungs to the working muscle. The "winded" runner soon discovers the measurement of maximum oxygen uptake is also a measure of aerobic capacity; the more oxygen an athlete can take in and utilize, the greater the aerobic capacity and the greater the level of exercise intensity the muscles reach.

Aerobic capacity, ventilation and respiratory exchange can be measured while the human or equine athlete is working. It's a relatively simple procedure if measurements are taken while the horse is working on the treadmill or swimming. A specially designed mask and gas collection system is used to measure the amount of air moving in and out of the lungs and to analyse the carbon dioxide and oxygen content. Studies have shown the horse's oxygen consumption, even during a less than maximum workout, can be increased some 35 fold. For example, horses trotting at a treadmill speed of 9 miles per hour on a grade of 11.5% had an oxygen consumption of 40 liters per minute, approximately twice that of a human.

Respiratory function tests should be utilized to study horses with chronic lung disease, upper airway abnormalities and exercise-induced pulmonary hemorrhage to determine the significance to athletic performance. Exercise induced pulmonary hemorrhage (bleeding) affects between 44% and 75% of the racing U.S. Thoroughbreds at some time. In Australia and New Zealand, such "bleeders" are banned from

LOCOMOTION STUDIES

With each stride of a racing Thoroughbred, the combined weight and force of 1,000+ pounds rests on a single leg no thicker at some points than a man's wrist. The result should be bone-shattering, yet it normally isn't. The musculoskeletal system of the horse, while hardy in some respects, still suffers injury due to a wide variety of factors, including over-use, conformation, medication, improper training, and the composition and design of race courses.

High speed cinematography with measurements of limb acceleration and of the forces produced during the support phase of the stride can be analyzed. Racing surfaces must be evaluated to determine their role in the cause and/or prevention of injury. It has been suggested that biomechanics and gait analysis may also be of value in the prediction of performance potential.

With time and study, equine research may supply information that will reduce injuries, increase working capacity and extend the competitive careers of equine athletes. And even though the chances of picking a winner at the track or arena may not improve, Equine Sports Medicine will take much of the chance and guesswork out of the breeding, training and working of winning equine athletes.



Photos by K. Redmond

PET BIRDS

What do you say to a Toucan with a sore nose? Or a hummingbird with a cold? Birds of an exotic feather are flocking together in veterinarian waiting rooms across the country. To the practitioner who learned a lot about ducks, geese, turkeys and chickens, but little about mynahs, budgies and parrots, the change is bewildering. Now, with 40 million pet and aviary birds in the U.S., veterinarians and veterinary colleges are taking a second look at avian medicine and pet bird programs.

At the New York State College of Veterinary Medicine, the emphasis has increased on teaching, research and diagnostic service in this area. Dr. David Graham, Professor Avian Medicine, specializes in pet bird medicine and teaches the principles of good maintenance, basic management, as well as common diseases of pet, wild and exotic birds to second year DVM students. In the area of research, staff and faculty in the Department of Avian & Aquatic Medicine concentrate largely on infectious diseases and on improving methods of diagnosis, for example, identifying various virus diseases. This research will eventually influence all aspects of keeping and breeding birds in a captive or domestic state.

The Pet, Exotic and Wild Bird Diagnostic Service receives biopsies and post-mortem specimens submitted by veterinarians, aviculturists, zoos, state and federal wildlife agencies and pet bird wholesalers and retailers. Dr. Graham often examines birds dying after release from the federal government's mandatory quarantine program. The cause of death is most commonly found to be a non-infectious disease, usually the result of a socially or nutritionally stressed bird. Malnourishment is often seen because little is known about the nutritional requirements of the many and various avian species imported each year into the U.S. The stresses of capture, shipping, quarantine, crowding and captivity can also precipitate an outbreak of disease.

Prospective pet bird owners commonly gain a false sense of security when they learn that the imported bird they intend to purchase has passed the federal 30-day quarantine. The sole purpose of that quarantine program is to prevent the introduction of "Exotic Newcastle Disease"—a disease which would have devastating effects on our domestic poultry industry. During the period of quarantine, the birds are also treated with an antibiotic to reduce the incidence of Psittacosis, a disease transmissible from infected birds to humans. Smuggling, however, has long been a popular alternative to legal importations and these "illegal avian aliens" are most likely responsible for the spread of Newcastle and other diseases.



Second year DVM students receive instruction in pet bird medicine, including such routine procedures as taking blood samples.

There has been an increased effort in the U.S. toward captive breeding. Other than domestically produced budgerigars, this accounts for only a small percentage of the supply. Most of the birds are captured in the wilds of Southeast Asia, South America and Africa. This practice not only depletes the number of species in the wild, endangering the safety of a wild population, it allows smuggled wild birds to serve as carrier of disease.

Dr. Graham recommends that the purchase of any pet bird, whether it's a \$10.00 budgie or an \$8,000 parrot, be approached with some caution. Deal only with reputable

pet stores, known private breeders or breeders advertised in avicultural magazines. Have the purchased bird examined by a veterinarian. While there are no certified avian specialists among veterinarians, membership in the Association of Avian Veterinarians (AAV) is a good indicator of interest. Finding a practitioner-member should not be difficult; the AAV is the fastest growing specialty organization in veterinary medicine today. For additional information on pet, wild and exotic birds, check your local library. Some pet stores will also be happy to order special topic books for you.

75th Stresses Equine

The emphasis is on equine for the 75th Annual Conference for Veterinarians scheduled January 18-20, 1983 at the New York State College of Veterinary Medicine. Although nearly every aspect of veterinary medicine is covered during the three-day conference, 24 seminar hours are reserved for equine-related presentations. Topics to be discussed are: respiratory problems in the horse, exercise-induced pulmonary hemorrhage in the horse, urogenital and other soft tissue surgery of the horse, management of equine injuries and the pathophysiology of the equine gastrointestinal tract. A seminar on the cardiology/exercise physiology of the horse will also be presented by one of the leading equine cardiologists and equine sports medicine specialists in the country. This equine "conference within a conference" includes an innovative wet-lab organized in cooperation with the 3M Company.

Even with the concentration of equine-related programs, the conference promises to be exceptionally well-rounded. Nearly 18 seminar hours will deal exclusively with bovine medicine during the conference, and small animal topics, from surgery to dermatology, will be discussed by some of the leading authorities in veterinary medicine. Several unusual programs on pet birds, aquarium fish, and plastic and reconstructive surgery are also included.

To register, contact the Office of Continuing Education at (607) 256-5454, Ext. 2200.

PLACEMENT REVAMPED

The placement service at the New York State College of Veterinary Medicine has entered the computer age. Beginning this Fall, a student can sit down at any terminal at the college and request a job listing, selecting by type of practice and location. In addition to permanent jobs for our upcoming graduates, we have stored information on summer jobs and externships for our underclassmen. More detailed information about each practice/job opportunity is located on paper files by file number in the placement office (C-117 Schurman Hall) with an auxiliary file in the library. The placement office further provides a resume service for fourth-year students and acts as the clearinghouse for state and national board information.

Anyone wishing to post a job with the placement office should write: Placement Office, C-117 Schurman Hall, New York State College of Veterinary Medicine, Cornell University, Ithaca, NY 14853 or call (607) 256-5454 ext. 2700.

FOOTNOTES

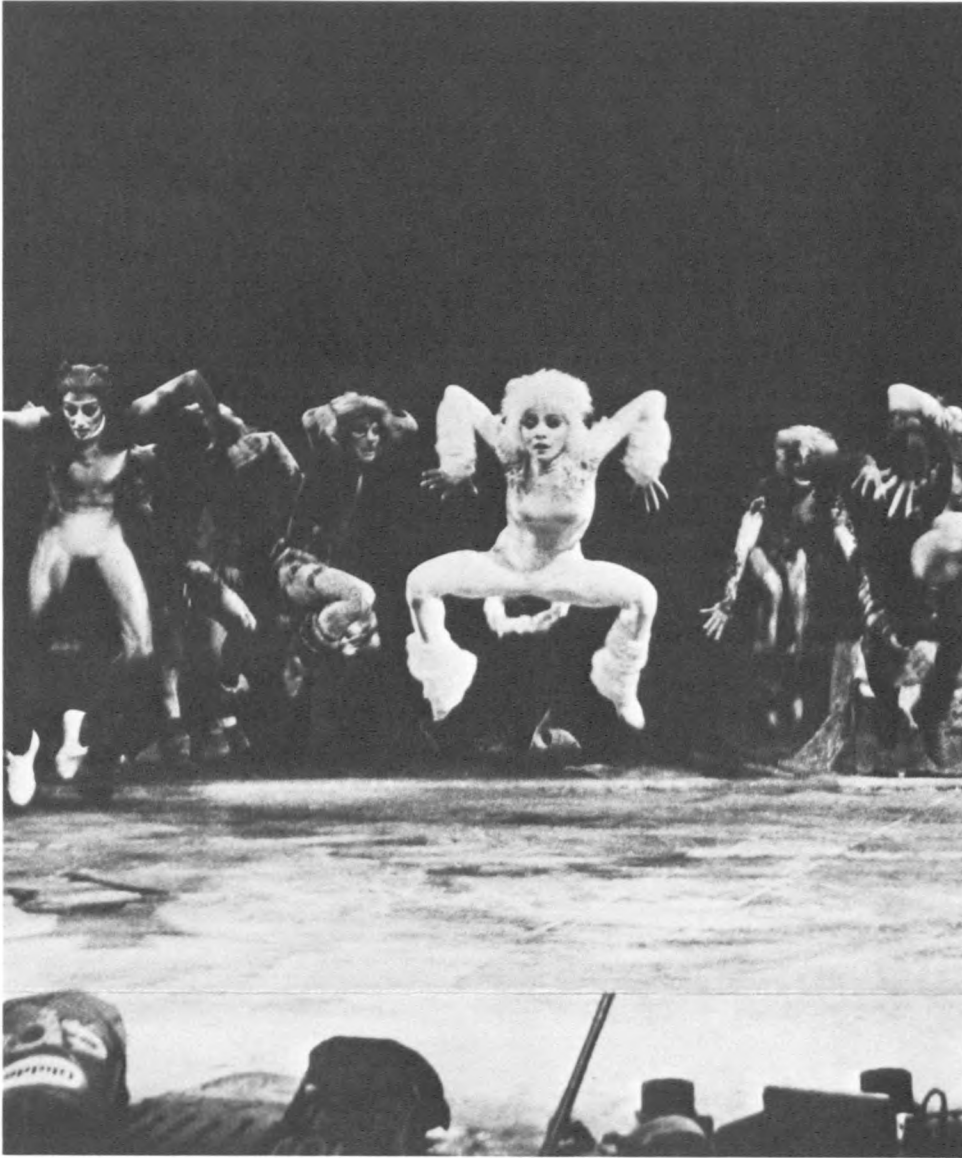


Photo: Martha Swope

"CATS" On Broadway

Cats and rubbish dumps on Broadway . . . Old Deuteronomy, Jennyanydots, Rumpelteazer and Mungojerrie . . . Assorted felines singing, dancing and cavorting in a show based on "Old Possum's Book of Practical Cats" by T.S. Eliot.

The play is "Cats" and it recently opened on Broadway after a sell-out year in London. Critics already anticipate a sell-out season in New York—and it would be difficult for this musical to fail, with inspiration from T.S. Eliot, music by Andrew Lloyd Webber (composer for *Jesus Christ Superstar* and *Evita*), and stage design by John Napier (collaborator on *The Life and Adventures of Nicholas Nickleby*).

A benefit performance of this wonderful cat's play of a musical will be given on Saturday, March 5, 1983, to raise funds for the endowment of the Dr. Louis J. Camuti Memorial Feline Consultation/Diagnostic Service. The evening's entertainment is especially appropriate because of Dr. Camuti's own love of cats, evidenced by his 50-year practice devoted to their needs. The price of a memorable night out while making a worthy contribution to the advancement of feline medicine is \$100. Proceeds beyond the actual cost of the tickets will expand and continue Dr. Camuti's life-

work by establishing an unrivaled Consultation/Diagnostic Service for veterinarians and cat owners, located at the Cornell Feline Health Center, N.Y.S. College of Veterinary Medicine, Ithaca, New York.

Once the service is underway, a full-time feline specialist will be available for telephone consultation; new feline serodiagnostic systems can be developed; and standardized reagents, procedures, and interpretations for tests will be supplied to laboratories throughout the United States. Thus the Camuti Memorial Consultation/Diagnostic Service will provide the most up-to-date analysis and advice to veterinarians on a case-by-case basis, and also serve as a reference laboratory for other institutions.

A limited number of orchestra seats are available for the benefit performance. If the rave reviews are any indication of the popularity of "Cats," you'll want to order your tickets right away. To get in on this delightful evening of entertainment and add your support to the Memorial Consultation/Diagnostic Service, send your ticket request with your check made payable to "Cornell Feline Health Center—Theater Benefit" to: Fredric W. Scott, Director; Cornell Feline Health Center; N.Y.S. College of Veterinary Medicine; Cornell University; Ithaca, NY 14853.

"CONSULTANT" RECEIVES GRANT

The computer age and veterinary medicine came a step closer at the College, thanks to a grant from the Merck Company Foundation. A check for \$4,500 was presented to Dean Edward C. Melby, Jr. and Dr. Maurice White by the Animal Health Education Grants Program of the Merck Company Foundation to aid in the development of a computer-assisted differential diagnosis program. Dr. White, Assistant Professor of Medicine, in cooperation with Computer Facility Administrator, John Lewkowicz, originated the program called "Consultant". When given a sign or condition, the program presents a listing of all the diseases for which the sign could be present. References, disease descriptions and possible tests are also given on request. The Foundation grant will fund enlargement of the program's data base and increase accessibility to the program.

Although the clinician will still do the work of pinpointing important signs and narrowing the list of possible diseases, "Consultant" is invaluable as a tireless memory aide for practitioners, as a learning tool for students, and as a continually current data base on published veterinary

literature worldwide. Over 1,300 diseases and conditions are part of "Consultant's" information program and it continues to grow rapidly. Presently in use by Cornell's veterinary clinicians and students, future applications of the program will include distribution of software to veterinary offices

and mobile units with access to terminals.

"Consultant's" grant comes through the Merck Company Foundation's Animal Health Education Grants Program, a program initiated to assist in funding education in veterinary medicine and animal science.



Dr. Maurice White, Dean Melby and Dr. R. Lee Seward, Merck & Co., Inc.

DEAN MELBY HONORED

Dr. Edward C. Melby, Jr., dean of the New York State College of Veterinary Medicine, was presented the fifth Charles River Prize during the 119th annual meeting of the American Veterinary Medical Association in Salt Lake City, Utah.

The award is given by the Charles River Foundation to a veterinarian selected by the AVMA in recognition of a distinguished contribution to the field of laboratory animal medicine.

Dean Melby has helped shape the organizational framework of laboratory animal science in the U.S., while serving as president of the American Association of Laboratory Animal Science in 1969-70 and the American College of Laboratory Animal Medicine in 1974-75, and as chairman of the Institute of Laboratory Animal Resources from 1975-78. Dr. Melby is currently president of the Association for Biomedical Research, a member of the National Advisory Research Resources Council, NIH, and a diplomate of the American College of Laboratory Animal Medicine. His contributions to the literature of laboratory animal science have been extensive, including a three-volume *Handbook of Laboratory Animal Science* which he co-edited.



CATS, CATNIP & YOU

By Kenneth L. Marcella, '83

It doesn't matter if you call it catmint, nep, cats wort, or even the more scientific *Nepeta Cataria*; it's all the same to your cat. Catnip. And if your feline is like most, this particular member of the mint family will put a bit of pizzazz in your cat's purr. At one time it was thought to have a similar effect on people, and historically catnip was used in human medicine as a tonic for the treatment of colds, colic, scabs and hemorrhoids.

But it wasn't until 1940 that science turned its attention to catnip. In that year, a group of researchers at the University of Wisconsin isolated and chemically characterized the biologically active compound in *Nepeta Cataria*. They found, through steam distillation, that catnip contained 42-50% of a compound called nepetalactone, 36% neptalic acid and smaller fractions of various other compounds. They then exposed large cats (lions and tigers) at the Vilas Zoo in Madison, Wisconsin to each of the compounds distilled from the catnip plant. Only the nepetalactone fraction produced any response.

These same researchers later discovered that nepetalactone exists in two forms called isomers. These forms are distinct in that the same atoms are arranged differently in each to produce one active and one inactive form. The ratio of these two isomers varies from 99:1 to 3:1 in individual plants, so some catnip plants are more "potent" than others.

Catnip, however, is not the only plant to contain a nepetalactone-like compound.

Cat thyme, garden heliotrope and Actinidia all contain similar substances. Actinidia, in fact, contains four such compounds and is so potent that research in large cats at the Osaka Zoo in Japan showed Actinidia to be addicting. Cats in that study continued to react to the Actinidia plant even though their sense of smell was affected and finally damage to their olfactory lobes (the odor sensing part of the brain) occurred. Similar studies with catnip showed no damage or permanent changes in any of the cats tested and despite three isolated reports of suspected catnip overdose in medical literature, the current assumption is that *Nepeta* is neither harmful nor addicting.

No one knows for sure if your cat experiences its own "catnip high" after exposure to the plant but the normal response has been divided into five stages: 1.) sniffing 2.) licking, chewing and head shaking 3.) chin and cheek rubbing 4.) head-over-heels rolls and total body rubbing and 5.) termination of the behavior when your cat will ignore the plant.

The average response lasts less than fifteen minutes. Cats generally do not vocalize during this time and there is a refractory

period of one hour before the cat will be interested in the plant again. Rolling seems to be the most consistent part of the catnip-induced behavior and both males and females respond equally well. Castrated males and spayed females will also respond. Kittens must be approximately 6-8 months old before they will react to catnip. Younger kittens will avoid the plant. Researchers have also found that the environment is an important factor in this behavior. Neither cats in unfamiliar surroundings nor sick cats would respond. Another interesting feature of the plant is that apparently not even all normal, healthy cats respond. There appears to be a genetic predisposition, considered by some to be the most important determination in the catnip behavior. In an average population, 69% of cats respond and 31% of cats lack this "catnip gene". Through the use of tranquilizers and by providing a conducive environment, the catnip threshold can be lowered and the response evoked from previously non-responsive cats.

Among the larger felines, the plant produces a slightly different reaction. Testing done at the Knoxville Tennessee Zoological

Park showed that lions and jaguars routinely responded to catnip but tigers, mountain lions and bobcats gave very low to no responses. This is interesting because those species living in the part of the world where catnip grows naturally—the northern hemisphere—did not respond, while those species that have little contact with catnip in the wild responded strongly. In these large cats, the response was longer, lasting 60 minutes or so and consisted of rolling, body rubbing and play behavior.

Biting, head-over-heels, pawing and jumping in a playful adult lion can be slightly frightening, but in a domestic cat it can be amusing, entertaining and occasionally beneficial to your cat's well-being. This is especially true if your cat is always kept indoors or caged as in a cattery. Since catnip grows well indoors, it is sometimes recommended you provide your pet with its own plant to chew on and play with. Cats generally will sit near it and chew the leaves but will not bother other houseplants which will be appreciated by your spider plants and begonias.

Most felines will regulate their own exposure to the plant and this, along with the refractory period to the response, insures that your tabby will not overindulge—an interesting and sobering lesson to learn from one's pet. So while no one is suggesting that you push catnip on your cat, these sporadic bouts of euphoria can make your cat calmer, easier to care for and possibly happier.

VETERINARY VIEWPOINTS

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