The fabled
F. H. FOX
ACKNOWLEDGED BY CLIENTS AND VETERINARIANS THROUGHOUT THE STATE, AND WELL BEYOND, TO BE ONE OF THE ALL-TIME GREAT PHYSICAL DIAGNOSTICIANS AND TEACHERS OF VETERINARY MEDICINE, F. H. FOX IS EQUALLY KNOWN FOR HIS WICKED SENSE OF HUMOR.
To hear Francis H. Fox tell it, it was only a last-minute caprice of fate that set him on the rutted, muddy path toward fame and notoriety as a professor of large animal medicine and obstetrics.

"My whole life changed two weeks before graduation in October of 1945," he recalls one dismal, early-March day on the approach to his eightieth birthday. "I had a job all lined up as an instructor in the small-animal clinic. Dr. H. J. Milks and Dr. H. C. Stephenson had hired me. Then Dean Hagan went to Germany for six months with the Marshall Plan, and the head of medicine, obstetrics, and the ambulatory clinics, the late Dr. M. G. Fincher, became acting dean. That created a vacancy in the ambulatory clinic, and they needed someone — a gofer, at least — to fill in. They canvassed the class and found out that there was only one student who didn’t have a job yet. He wasn’t interested in working in the ambulatory clinic, and Dr. Fincher wasn’t interested in him, either, but the other guy was glad to take the job I had been offered in small animals. I agreed to ‘save the College,’" he intones with a dramatic quaver in his foggy, tenor drawl, his chin thrust nobly upward, "and take the job in large animals that wrecked my career. By now I’d have been famous and rich if not for that."

It is best not to take such accounts precisely at face value, even when the face behind them looks so nearly
beatific. "Saint Francis", as those among his large flock of devoted friends and former students sometimes call him, has a penchant for ironic hyperbole. Acknowledged by clients and veterinarians throughout the state, and well beyond, to be one of the all-time great physical diagnosticians and teachers of veterinary medicine, he is equally widely known for his wicked sense of humor. The pranks, insults, and come-uppances that he exchanged with more than four decades of students are the stuff of legend — so much so, in fact, that his followers compiled an entire bookful of anecdotes as a gift for his seventieth birthday.

Twists of fate notwithstanding, Fox came by his vocation honestly, growing up in Clifton Springs, New York on a farm that had "everything but sheep — horses, chickens, pigs, cash crops, Guernseys, Holsteins, and one milking shorthorn — the best cow in the herd," in his estimation. Fox's roots in veterinary medicine go deep; his first mentor was William H. Salisbury, who graduated from Ontario Veterinary College in 1894, the same year that James Law welcomed the first class to Cornell's newly established New York State College of Veterinary Medicine. Salisbury was the veterinarian who called on the Fox family's farm, and Fox had long planned to join his practice after graduation. But the elderly practitioner advised the new graduate not to pass up Cornell's offer of a year's work with small animals. Two weeks after accepting that position he was reassigned to the ambulatory clinic; Salisbury died before the year was up; and Fox never left academic large-animal medicine.

Fox has a preternatural affinity for cows, and he can read the story of their ills in every bristle of the hide and droop of the ears. "He's keenly aware of what an animal is telling him," says Bridget Barry, DVM '91. "I think they also have a sense, in return, about him. Maybe they sense that he's okay and he's trying to help, so they let him see what's wrong with them."

Barry sees nothing mystical, however, in Fox's ability to commune with cows. "I think it's a hard-worked-at talent," she says. "It's an art that has been constantly developed because he loves it. It's not something he learned in a book. It's something he learned by observing zillions of cows."

"Cows are his favorite," confirms ambulatory clinician emeritus Robert Hillman, DVM '55, who was a Fox protégé. "He's also an excellent equine practitioner, but he won't admit it."

"I'm more comfortable with cows, more experienced as a farm lad with cattle than horses, although we had draft horses," says Fox. "Aaaaaaaand," he adds slyly, his voice rising up the underside of an octave with the nasal whine of a remote-controlled airplane, "frankly, I like the owners of cows much better than the owners of light horses."

Beyond his mastery of physical diagnosis itself, Fox has an exceptional ability to evoke the full sensory experience of a disease so memorably that his students, once in practice, were able to recognize situations they were seeing for the first time.

"His first lecture was so full of vivid examples that I can quote verbatim 32 years later," recalls George Holmes, DVM '70. He remembers Fox's indelible description of a Jersey cow whose pain was so extreme as she passed a kidney stone that she flipped over in her stanchion. So when Holmes saw a cow in such distress that she slid down the wall of her stall onto the ground, he knew what he was looking at. "He knew that we couldn't see everything while — a professor for the ages
But this stance is neither new to his later years nor reserved for the tools of biotechnology. In an article published in the Allied Veterinarian in 1961, Fox wrote, "I do not attach the significance to the thermometer that many clinicians do." He went on to offer examples of disease conditions that could occur simultaneously and counteract each other's effects on temperature.

"Today's medical people are taught to begin with every possible explanation for a clinical problem and narrow them down," says L. William Goodman, DVM '53. "Fox's view is that if you're standing in a barnyard and you hear hoofbeats, it certainly won't be elephants. He has a fast-moving, logical mind. He is a very gifted man."

"He taught a lot of common sense," agrees Jack Hyde, DVM '54, Fox's friend of nearly 55 years. "He wouldn't miss a thing. When he walked into a barn, he could tell you how many panes were broken in that barn and where the drafts were coming from. And he's got a memory like an elephant. What he sees, he doesn't forget."

Robert Clark, DVM '52 is one of many who understand Fox's point of view. "The physical diagnosis course taught by Francis Fox carried me through all those years in the examination room," he says. "With his protocol of thorough questioning of the client and listening to the answers, and thorough observation and palpation of the patient, a conclusion could be reached as to how to proceed. Today there is more bloodwork, x-rays, and other diagnostic tools that are helpful, but they should never replace the Francis Fox approach."

Fox's diagnostic acuity was put to a rare test in his very first year as an ambulatory clinician. On the third day in March of 1946, he was called to a farm in Ithaca's Inlet Valley to tend to a Red Devon cow that had signs of winter dysentery. The animal, "a one-cow herd", in Fox's words, had been imported from England two years earlier and was kept as a pet. The junior clinician noted that the cow exhibited two signs rarely seen in
uncomplicated cases of winter dysentery, namely a three-degree elevation in temperature and anorexia. He treated the cow’s diarrhea and instructed the owner to call the clinic the next day if the cow had not improved.

“The next day, the owner did not just call the clinic; she called my boss, Dr. M. G. Fincher,” wrote Fox in 1996 in recalling the incident for a fiftieth-anniversary international symposium, “and reported that her cow, which one of his young clinicians by the name of Fox had treated the day before for winter dysentery, had died during the night!” Fox was immediately summoned to Fincher’s office and informed that cows do not die of winter dysentery.

Five days after visiting the Red Devon, Fox was called to attend to a dealer’s herd a mile or so further down the road. There he found 15 cows with even higher fevers than the Red Devon’s and many serious symptoms besides the ones she had exhibited. “Not wanting solely to bear the blame for another ‘incorrect diagnosis’, I immediately called for help to some of my many superiors,” Fox recalled drily in his memoir. “Within one hour, Drs. D. H. Udall, M. G. Fincher, Peter Olafson, W. J. Gibbons, and S. J. Roberts arrived at the farm.”

The theories flew thick and fast. When toxicology results showed one of the feed samples to contain ammonium nitrate, the animals were treated for nitrate poisoning, to no avail. More and more cows fell ill.

There being no clinical pathology laboratory at the College in those days, Fox decided on March 10 to exercise his laboratory privileges at the student infirmary, where he had worked nights and weekends as a laboratory technician while in veterinary school. He was hoping to find evidence of basophilic stippling in some of the red-blood cells taken from affected cows, a finding that would support the poisoning theory. He noted instead that he could hardly find any white cells. At around midnight — the start of Fox’s twenty-third birthday — in walked P. K. Li, a resident physician with a master’s degree in hematology. Li wanted to know what Fox was doing, and became fully intrigued when he heard about the absence of white cells. After the two of them did total white-blood-cell counts from Fox’s samples, Li promptly concluded that only a virus could cause such a severe leukopenia.

Li did not appear as a co-author with Fox, Olafson, and pathology instructor A. D. McCallum on the paper that reported the discovery of bovine viral diarrhea (BVD) virus. Fox is scrupulous in acknowledging his contribution publicly whenever possible.

In the days that followed, the illness cropped up at five other farms located at a significant remove from the dealer’s herd. All had one thing in common: Fox had visited them after visiting the Red Devon on March 3. “This attested, obviously, to the ease with which this disease can be spread,” wrote Fox.

“Yeah, he tracked that all over the county,” Jack Hyde agrees warmly. “That’s when they found out that Lysol didn’t work. It’s good for bacteria, but not for all viruses.”

Fox’s student job in the Cornell Infirmary was fateful in more ways than one. Not only would it afford him access to a hematology laboratory when he really needed one, but it put him in the path of a very nice nurse named Mildred Cullen. “Miss Cully”, as he called her, would become his exceptionally devoted wife and the mother of their four children.

“Oh, heavens, I could tell you some things, but I promised I wouldn’t,” she
says with characteristic diplomacy. “He is a study, I'll tell you.”

Mrs. Fox does acknowledge that her husband worked very long hours. “He wasn't always home, you know; he just loved the job,” she says sweetly. “And very often we accused him of going to hide in his office, especially if relatives came.”

Having Dad home for dinner posed a different set of challenges for the Fox household. It seems that Fox is as happy to snooker a child as he is a student or a friend. “He used to play tricks on the children’s friends if they were there for dinner,” recalls Mrs. Fox. “One of them was to put horseradish on their mashed potatoes. So Rusty [daughter Roseanna] would always say, ‘Don’t eat anything that Dad suggests unless we eat it first.’”

While Fox's reputation for mischief extends well beyond his home state, few know the full reach of his good works. Both he and his wife have done yeoman's service in organized veterinary medicine, much of it behind the scenes. But Francis and Cully Fox have also quietly extended a lifeline to many troubled students, indigent former clients, and elderly neighbors. These have not been single instances of charity, but ongoing offerings of groceries, labor, counsel, advocacy, and friendship.

“For all the joking around that he does, he is incredibly observant and sensitive to what's going on with the people and the animals around him,” says Bridget Barry. “That's why farmers love him. He'll take the time to ask them about family members and who's sick, and he'll call them back and look after them and offer to drive them to their doctor's appointments. He'll do anything for people. He's a wonderful man; he has a wonderful wife. She's really great.”

“I have learned as much about life from Dr. Fox as I have about veterinary medicine,” says Leslie Appel, DVM '94. “His support and friendship never waiver. He is always there when I need advice, and it is always honest and straightforward. He is very important to me.”

Fox's public contributions have included five years as chairman of his department; an unequaled 15-year stint on the Executive Board of the American Veterinary Medical Association, which he chaired for two terms; and the presidency of the American Association of Bovine Practitioners, of which he is a founder. He served as veterinarian at the New York State Fair for 26 years. In his own community he has served as a member of the county board of health for 18 years, the past 13 as chairman. Although greatly respected for his fair-minded but no-nonsense approach to running a meeting, he finds no situation too serious for a little irreverence. “He always offers to share his snuff with me at board meetings,” smiles Alice Cole, the health department's public health director.

Fox is loathe to discuss awards and recognitions. An incomplete list includes the Distinguished Life Service Award of the New York State Veterinary Medical Society, membership in the National Academies of Practice, and a national award given by the Ohio State chapter of Omega Tau Sigma veterinary fraternity. He is a charter diplomate of the American College of True friends: Fox on a farm call with former student and longtime colleague Bob Hillman, DVM '55
A humanitarian he may be, but Fox knew how to intimidate his students. He maintained strict discipline in the classroom and was unsparing in his scrutiny of a student's grasp of the subject matter. "He was great at letting students dig a hole deeper and deeper and deeper and then cutting the rope that was holding them there," laughs Jack Hyde. Even Hyde, who was Fox's friend before he was his student, remembers his oral examinations as a thoroughly going ordeal. "You never knew what he was going to ask," he says, shuddering still. Both Hyde and Fox agree that their friendship gained the student all the worst possible assignments.

Leslie Appel got to know Fox under particularly high-pressure circumstances — the very first clinical spay she ever performed was on his dog. "This was a giant rottweiler," she remembers, "huge, so it was really hard to palpate her abdomen. She was early pregnant, and then we get in there and find it's an early-pregnant uterus, which makes everything much harder." The surgery went fine, but Fox alarmed her again. "And that's when he picked up his pet and exclaimed in the middle of the hospital lobby that Appel had tied off the dog's ureter, which she had not. "And that's how we became friends," she says.

Fox also made an impression on Martin Fettman, DVM '80, who became the first veterinarian to fly in space when he served as a payload specialist aboard the shuttle Columbia in 1993. After describing the experience as the Spencer T. and Ann W. Olin Lecturer at Cornell in 1994, Fettman, a professor of pathology and associate dean at Colorado State University, was asked by an audience member if he had been frightened during the launch. Yes, he acknowledged, space flight is emotionally and physically trying. On further thought he added, "But I survived Francis Fox! After that, nothing is nearly as scary!"

Another former student with a unique perspective is former dean Robert Phemister, DVM '60, who memorably stated at Fox's retirement party ten years ago, "I have had the peculiar experience of leaving here as his student and returning as his dean. He intimidated me as a student a whole lot more than I can imagine intimidating him as a dean... On the other hand, I'm glad I'm his fourth dean and not his first."

In his command of the classroom, Fox was carrying on the tradition handed down to him by the three professors he admired the most — Myron Fincher, Peter Olafson, and P. P. Levine. "Stroooong disciplinarians," he says. "You didn't walk in late for a class. In Levine's class the door was closed and nobody came in. He started his lecture on time. And you didn't dare sneak in on the other two. So that's the way I taught — no talkin', no sleepin', no comin' in late."

Fox's respect and admiration for his professors is genuine and deep-seated. He has a very clear sense of his place in the direct lineage that comes down from James Law, the founding dean of the College. "Dr. Fox knows where his mentors are buried — Law, Udall, Fincher," says John Perdrizet, DVM '81. "One of the first things he did with me was take me to a cemetery and show me their graves." "Oh, that's absolutely core of him as a clinician," agrees Donald F. Smith, dean of the College. "His lineage comes from Udall to Gibbons to Fincher."

Denny Hammond Udall, DVM 1901 joined Cornell's veterinary faculty in 1908 to fill the teaching position vacated by the retirement that year of James Law. In the days before the College moved up Tower Road to its present location, Fox had an office across the hall from the venerable professor of large-animal medicine, who had retired in early 1942. "So we had many chances to talk, and any case I had that was puzzling, I would go in and visit him," says Fox. Udall was the top bovine practitioner of his era, and Fox had the honor of accompanying him on his calls to Tarbell Farms, which at 500-plus head was a very large operation in those days. "He broke me in, and I took over that farm in 1952," Fox recalls.

After his rookie year in the ambulatory clinic and a year's instructorship at Ohio State University, Fox was hired on a permanent basis in 1947 to take over the class in physical diagnosis that had been taught with distinction for 21 years by Walter J. Gibbons, DVM 1925. "I've never known a man before or since with the physical abilities he had to make a diagnosis," says Fox, who would teach the class until it was phased out in the mid-1980s. Even after, though, he continued to teach physical diagnosis as an element of his course in large-animal diseases. "I snuck it in," he says.

In his current office in the hay barn across from the Equine and Farm Animal Hospitals, Fox keeps an unremarkable-looking metal tackle box containing choke ropes and glass syringes in the drawer of a filing cabinet. Udall used the kit at Tarbell, the last farm in New York that was certified to
ship raw milk, to test the cows for tuberculosis and brucellosis. In the same
drawer, Fox has Gibbons’s ancient-looking leather grip. It holds two rows of
cork-stoppered glass bottles with “enough poison to kill everyone in
Ithaca,” he notes dryly, remnants of a
time before antibiotics and other veterinary pharmaceuticals when veterinarians mixed their own compounds. Both kits were handed down to him for
his own use in 1947.

As carefully as he has preserved
these and other artifacts of the College’s earlier faculty, Fox kept their lessons alive in the methods and ethics he modeled for more than two generations of
students. “As Dr. Fox’s student you re-
mally began to understand that veterinary medicine was a noble calling,” reflects
George Holmes. “He had a sense of his-
tory, of deference for his old professors.
A lot of people weren’t interested in
hearing from the retired professors, but
Dr. Fox brought Dr. Fincher and Dr.
Olafson into his class to speak to the
students. With Dr. Fox you always felt
that there was a direct link between
James Law and what was happening
that day.”

Dean Smith notes that Fox, like
many emeritus professors, has remained actively involved in the life of the Col-
lege. “In addition to continuing to serve
some of his dairy clients following his
official retirement, he also continues to
be the driving force behind the weekly senior seminar. This long-standing Cor-
nell tradition gives students in their fi-
nal year an opportunity to conduct an
in-depth clinical investigation and re-
port their findings to their mentors and
their peers,” says Smith. “As he guides
the students through the rigors of pre-
paring formal oral and written presenta-
tions, he is dedicated to instilling in
them a level of confidence that will
serve them well in their professional ca-
reers. I admire and respect that com-
mitment.”

One of the greatest opportunities
to learn from Fox, as he had from Udall,
came from riding along with him on
farm calls. Those outings furnished the
occasions for many of the outrageous
pranks that, for some, came to charac-
terize Fox and that constitute a large
body of College folklore. But those who
rode with him were not just along for
the laughs. “It was a privilege to ride
with him; he didn’t have to take stu-
dents with him on calls,” reminds Per-
drizet. “You had to be humble. He only
took the students who were truly inter-
ested. If you were two minutes late on a
Saturday morning, you got left behind.”

“You had to earn that invitation
to go on farm calls with him, but I think
anyone could have earned that if they
truly wanted it,” says Barry. “He just had
to sense in you that you wanted to learn
from him. I think they used a term like
‘solid citizen’ — you had to show cer-
tain things about your character.”

The loyalty that many students felt
toward Fox was unbreakable, and is still
very much evident in the number of alumni who call, write, and visit many
years after taking their last ride with
him. For John Perdrizet, apparently no
sacrifice was too great to make for the
chance to savor that feeling of camarad-
derie. “I never missed a Saturday. I even
lost a girlfriend because of that. She
gave me a choice of her or Dr. Fox — I
went with Dr. Fox.”

Now that’s love.
Anesthesiologist Lysa Posner supervises the transfer of an anesthetized horse to a recovery stall following a CT scan.

If there is such a thing as a typical day in the clinics for veterinary anesthesiologist Lysa Posner, this has the looks of one so far. By 10:30 in the morning she has overseen five anesthesias in the Companion Animal Hospital and is answering interview questions while large-animal surgery team leader Karen Netherton, LVT, pops in and out with updates on the condition of a backyard thoroughbred.
getting prepped for surgery in the Equine Hospital. Posner has been keeping an eye on the anesthetized six-year-old bay gelding for nearly two hours while radiographs and a CT scan have been performed. He has a tough surgery ahead of him, and he is already anemic and hypotensive, the result of bleeding at the site of an ominous-looking mass in his sinuses.

Every horse is at special risk under anesthesia. Their mortality is ten times that of small animals; nationwide, an average of one of every hundred horses undergoing anesthesia dies, according to section chief Robin Gleed. Although the death rate is nowhere near that high at a tertiary referral center like Cornell's, there is still a great gap between equine and human anesthesia survival rates under even the best of care.

There are several reasons for this. Animals undergo anesthesia for many more procedures than humans, who can usually be counted on to hold still for x-rays and dental cleanings. And Gleed points out that much less is known about an animal's condition before it is anesthetized for a CT scan or endoscopy than is known after the procedure is over. Add to that the variability in response to anesthesia among individuals and species, and the need for much more research to quantify those differences in susceptibility, and veterinary anesthesia becomes quite an art form. Cornell has a stable of well trained DVMs and LVTs who focus solely on anesthesia, but every solo practitioner in the country has to incorporate anesthesia into routine practice.

Along with the best specialists come the sickest patients. Anesthetizing a dog that needs a pacemaker or a liver biopsy can be very challenging, and Posner, Gleed, and fellow anesthesiologist John Ludders alternate every day between such cases and equine patients like the one before Posner now. But Cornell's anesthesiologists know how to improve their odds of success. "I don't think this horse is going to die," Posner is saying on her way into surgery, "because we have spent the past two hours troubleshooting, getting blood, getting catheters, and talking about fluids, so everybody is on the same page. If you're not prepared for something to go wrong, those are the ones that crash and burn right in front of you. Then it's hard to play catch-up."

Aside from the patient's condition, this surgery presents two other challenges for the anesthesia team. The first
is that the surgeon, Brett Woodie, will be working on the horse's head. "Horses' eyes are one of the best indicators of how lightly or deeply they are anesthetized," Posner explains after she has verified the anesthesia levels and checked the patient's multiple intravenous drips — hetastarch to increase plasma volume; plasmalyte, a fluid replacer; dobutamine to increase blood pressure; and calcium. "We normally watch for eye movement, blinking, and tearing to alert us to changes in the depth of anesthesia, but this time we have no clue what is going on up at the head. All of our instrumentation is far away from there, which makes things interesting."

The second concern is bleeding. Sinus surgeries are always bloody affairs, and there is already a respectable puddle at Woodie's feet as he pries open the hinged hatch he has chiseled into the horse's forehead to gain access to the sinus cavities. A granulated cyst completely fills the frontal sinus. As he works with some urgency to remove the massive growth, cutting and scraping at first and finally digging rapidly with his gloved fingers, the blood flows in earnest. By the time the surgery is over, this 1200-pound horse will lose at least five liters, about one-eighth of his total normal blood volume.

Thanks to blood-donor horses brought over from the Cornell Equine Park that morning, he will get most of that back. Posner is somewhat anxious, though, waiting for the first bottles to arrive. She keeps a close eye on the blood-pressure monitor that is connected to the patient by means of an arterial catheter. She also checks his packed-cell volume in order to gauge his supply of red blood cells. His PCV was 32 percent before the operation began, but has dropped to almost 20 percent, she notes; he is going to need blood soon.

With Woodie and his team fully occupied with the surgery itself, managing the rest of the horse's condition is Posner's responsibility, with help from anesthesia resident Hanna Airasmaa, anesthesia technician Lynette Degouff, and senior veterinary student Patricia Fitzpatrick. Forty-five minutes into the surgery, Posner points to the blood-pressure monitor. "This horse is not okay," she raps. Degouff suggests injecting air into the glass bottle of blood to increase pressure and flow. With an experienced hand, she inserts a needle into the bottle and presses the plunger carefully — too much pressure will break the bottle. Further down the table Posner pumps up the inflatable bag around the IV fluids. They never do get things flowing as quickly as Posner would like — the catheters just aren't big enough — but the patient responds and comes through the surgery in good shape.

Done with his morning's grueling workout, Woodie goes off to shed his blood-soaked scrubs and contemplate his next surgery. But the anesthesia ser-vice has at least another hour to go with this case. After all the horse has been through, the inert animal still has to be winched up off the table by his legs and lowered upside-down onto the mat in the padded recovery stall. The all-female recovery team supports his head and guides his flanks. Horses are poorly designed to support their own weight lying down, and an hour spent unconscious in the wrong position can cause a life-threatening chain reaction of tissue death. On a count of three, the women haul for all it's worth on every available extremity to reposition his body and legs.

Once the door of the stall is slid shut and barred with a steel beam, Airasmaa clammers up on top of the wall to watch her patient. The others stand in the corridor, their eyes fixed on a closed-circuit television monitor. The stall is dark, the patient illuminated only by infrared light, but the video image is sufficient to tell them when the horse starts to stir. It happens sooner than Posner would like. The horse tries to get up, stumbles, and flops with a whump onto his other side. Soon he is napping again.

"Ideally I would like him to be still for ten or 15 minutes just to sleep it off," she says. "They don't all read the book. But as we say, I'd rather see him alive and moving than too deeply anesthetized."

Fifteen more minutes is all he gives it before he assembles himself into a position of sternal recumbency. Posner is grateful that he is staying in this position long enough to get his bearings — a rare show of prudence on the part of a horse. "They're not calm, practical, think-about-it kinds of beasts," she says. "Cows are really smart about this stuff. Cows wake up and look around, and an hour later they get up and walk away. Horses, the moment they have any consciousness, start flailing around. This panic can kill a horse that was otherwise set to recover nicely. She has heard of rare cases in which horses have broken their necks or asphyxiated from airway obstruction. More commonly, they can break their legs or damage their spinal cords, injuries that often
ultimately prove just as fatal. Recovery from anesthesia is a very dangerous time for a horse.

Within ten minutes the horse is on his feet, but he quickly crashes onto his side. He will stumble to his knees and fall over several more times, but Posner thinks he is doing very well. Still, it is hard to watch him banging blindly into walls, even padded ones, so soon after a traumatic surgery. How much pain is he experiencing?

"I'm sure that this horse has a big old headache, but it's not like we held back the good stuff," says Posner. "He has had analgesia in the recovery box, and he will have more. Post-operatively they almost all get either an opiate or a non-steroidal anti-inflammatory, or both. He has had two doses of opiates and of alpha-2s, which are potent analgesics, in the three hours I've had him. What he'll be like in four hours I don't know, but I think at the moment we have probably managed his pain adequately."

Posner is speaking to Airasmama about the breathing tube that has been left in place to keep the horse's airway clear while he sleeps, reminding her that it needs to be removed "before he eats it." Airasmama has to climb into the stall with the animal, pull the tube, and hoist herself out of there before she gets hurt. At five-foot-one, Posner is too short to reach the bar inside the door that others use for a quick leg up, so she has hung knotted escape ropes in opposite corners of the stall. She offers to go in this time, but the willowy new resident sizes up the situation and gamely goes over the wall.

Ideally, all horses will be standing and ready to walk back to their stalls an hour after surgery, and this one is ready to go in good time. Student Fitzpatrick grabs his halter and lead rope from a peg on the wall, and they unbar the stall door. Posner has her patient by the tail as the team leads him gently back to his ward. His owners will never meet the members of this crew, but night and day they are there, in the background, guarding the lives of the hospital's most vulnerable patients.
do you do when you are awakened by a cat having seizures or a horse that is writhing with colic?

If you can get to Cornell, do it. The large- and small-animal emergency services of the Cornell University Hospital for Animals are open for business and standing by 24 hours a day.

The CUHA has improved emergency and critical-care services on both sides of the hospital. The changes are apparent as soon as a referring veterinarian or a pet owner dials the main number — 607-253-3060 for companion animals and 607-253-3100 for large animals. The hospital has done away with the overnight answering service; after hours the telephone now rings in the hospital. At the other end of the line is a licensed veterinary technician trained in telephone emergency triage who can put the caller in touch with a veterinarian when needed.

Nishi Dhupa, director of emergency and critical care in the Companion Animal Hospital, cites another change that has meant a lot, the hiring last summer of a sixth intern. This additional internship makes it possible to assign the interns to an overnight rotation in small-animal emergency and critical care. Interns no longer work days on a clinical rotation and then stay up all night — and all day the next day — when the nights get busy. Even more importantly, it ensures that a rested intern is on the floor all night long to handle emergencies. As a result, overnight admissions are going more smoothly than in the past, and their numbers are increasing.

The residents in small-animal medicine and surgery back up the intern, calling in surgical and anesthesia teams whenever needed. A radiology resident can be called in as needed to take emergency radiographs or perform an ultrasound examination. “The emergency service can handle a diverse array of cases after hours,” says Dhupa.

The presence of an overnight intern allowed Dhupa to establish a student rotation based on a similar principle. “The students alternate between noon-to-midnight and overnight shifts,” she explains. “But they get to sleep during the day when they are on overnights, and that makes a huge difference. They are able to get really involved with emergencies and with critical patient care.”

The new rotation is voluntary, at least for now. The third-year class will vote every year, as this year’s class did for the first time before entering clinics in January, on whether or not to participate in the rotation, which comes
at the expense of one of their free blocks. "So the difficulty is that you have to get a whole class to buy in," says Dhupa. "But it's gone even better than we expected. The feedback is very good. They are really getting a lot out of it. They have a huge checklist of techniques and procedures that they need to work through, and I am amazed at how much they are able to accomplish in that time frame — they're good. And the intern class and the technicians in intensive care and in intermediate nursing care have been wonderful with teaching them."

The students have case and topic rounds with emergency clinicians in the evenings and at night. Dhupa developed a website as a self-learning tool for the students; there they can look up lecture presentations and case examples of a wide variety of emergency scenarios. "We've tried to be as creative as we can, because this is a non-traditional rotation," says Dhupa. She also supervises the interns and has developed weekly continuing education sessions with them.

The Companion Animal Hospital's intermediate nursing care unit also reflects the changes that have been made. When it became clear that the intensive care unit was consistently too crowded, the second unit was created for patients who, though not critically ill, still need close monitoring and active support, such as catheters, intravenous medication, and blood transfusions. Patients who need more than that — intravenous nutrition, oxygen, EKG monitoring, or multiple IVs, catheters, or blood transfusions — are cared for in ICU.

Dhupa's counterpart in administering the emergency- and critical-care service in the Equine and Farm Animal Hospitals is emergency surgeon Vanessa Cook. Cook's day starts 24 hours a day, seven days a week, 365 days a year," says Cook. "My feeling is that we see fewer cases per night than the small-animal side, but

the cases we see are much more involved and intense and require a lot more bodies around to be able to deal with them."

Cook was hired three years ago to handle the growing emergency caseload. Even though residents from medicine and surgery are on primary call at night, large-animal emergencies often require the presence of a faculty clinician. Intensive medicine cases and major orthopedic surgeries still get those specialists out of bed at all hours, but Cook takes care of the most frequent and time-consuming cases of all, the colic surgeries.

"With colic surgery, you're basically here for six hours from the time the horse arrives until it recovers and is returned to its stall," she says. "When you just have the emergency cases to focus on, then you are much more enthusiastic about doing them. At the end of the day, the clients and patients get a better standard of care, and the residents hopefully get more out of their cases as well." She adds that all after-hours surgeries get an invaluable assist from the "colic crew", a group of students drawn primarily from the first- and second-year classes.

Colic is a very general term for any abdominal pain in a horse, according to Cook. When an animal is pawing and
rolling and otherwise showing signs of distress, it may be experiencing nothing more serious than gas pains. On the other hand, colic can also be caused by a twisted or displaced section of intestine — a severely painful, life-threatening emergency that requires rapid surgical correction. If that piece of intestine has been constricted for very long, it often becomes devitalized and needs to be removed.

“The cases that come here have often traveled three or four hours on a trailer to see us, so by the time they get here they’re often a lot sicker,” says Cook. “The problem is you need such extensive facilities, and it costs a lot of money to staff a hospital 24 hours a day, so there aren’t that many facilities around. Most veterinarians out in the field don’t have the facilities to put a horse under general anesthesia for two or three hours, nor do they have the training and board certification to do colic surgery. They’re coming here for specialist treatment.”

Horses that come through colic surgery often still face serious illness and require intensive nursing care. “The problem is that horses get very sick from the toxins released from their dead intestine and from the intestine not wanting to work properly after surgery,” Cook explains. “They usually stay here five to seven days. They’re often on intravenous fluids; they’re often on pro-motility agents to help their intestines to work; they’re on antibiotics to counteract the effects of the toxins released by their intestines; they’re being monitored; and they’re having blood samples taken to check their hydration and their electrolytes. It’s a very intensive treatment.”

“One of the things we’re using a lot at the moment is intravenous infusion of lidocaine,” she continues. “Most people are familiar with lidocaine as a local anesthetic, but it’s also a very good pro-motility agent; it keeps the patient comfortable and reduces pain after surgery.” The surgeons are also using new absorbable membranes that protect against intestinal adhesions, another potentially serious complication. “But I think the most important part of our care and our success with colic cases is that we have very well trained technicians working 24 hours a day making sure that those cases have the very high standard of care that they need,” says Cook.

Cows, too, can suffer displacement or twisting of the large intestine, and the hospital sees a fair number of those cases. Other cows need emergency caesarian sections or surgery to correct displacement of the abomasum, the fourth compartment of the stomach. Male pygmy goats often suffer from urinary blockage. Cook sews up quite a few lacerations in horses and other animals, especially those that involve a joint or a tendon sheath, while fractures get turned over to the orthopedics team. “We’re pretty much working flat-out,” says Cook. “We don’t turn cases away. We have enough technicians and stalls to be able to handle pretty much any emergency that wants to come in.”

Cook would like to establish a large-animal emergency and critical-care rotation for the students as Dhupa has done on the small-animal side, but such a step will have to wait until the hospital absorbs the costs of other recent expansions and figures out how to add yet another rotation to the students’ already full load. Cook is also looking ahead in terms of her own training. Already board-certified in surgery, she is in the midst of an alternative-track residency in emergency and critical care under the mentorship of large-animal medicine professor Thomas Divers, who is himself board-certified in emergency and critical care as well as in veterinary internal medicine. Cook plans to sit for that exam next year. Nishi Dhupa is already board-certified in emergency and critical care as well as in veterinary internal medicine and is experienced in disaster response.

The challenges of emergency and critical care are enormous, and the work can be emotionally and physically draining. Perhaps nothing matches the drama of a 1000-pound horse throwing itself on the ground in agony. But Cook and Dhupa and their outstanding teams are repaid every day in lives saved and the gratitude of clients who get to take their beloved animals back home.
Dietrich Volkmann sees many things in the course of his clinical work that pique his curiosity. If there were only a few more hours in the day, he would probably study them all.

Volkmann’s faculty appointment is weighted roughly equally among clinical service, teaching, and research. So many compelling questions arise in the context of his clinical duties that he views research as an integral part of clinical life. Moreover, he believes that he has a responsibility as an academic clinician to address problems of veterinary importance. “The hospital is home to the faculty members who will drive clinical veterinary medicine,” he says. “We should grapple with clinical challenges and make animal diseases manageable, find out more about them.”

After coming to Cornell in June of 2000 from his former post as head of theriogenology at the University of Pretoria in South Africa, Volkmann was very pleased to find his accommodations in the Cornell University Hospital for Animals so amenable to incorporating research into his clinical activities. He is especially enthusiastic about the Cornell Equine Park, where most of theriogenology’s equine work is done. “We have this incredible facility with a terrific manager, Carol Collyer. This may be one of the only full-fledged hospital satellites where horses can stand at commercial fees rather than hospital fees. We breed them, we do embryo transfers on them, we freeze stallion semen. We would probably consider semen freezing a clinical activity, but at
the same time I have research going on in that field.”

The reproductive specialist has research going on in quite a few areas. One of his larger projects is seeking to determine the reason for a phenomenon that is so natural to horses that it tends to go unquestioned. Volkmann has long wondered why foals and their mothers lie perfectly still after delivery, the foal’s legs still inside the mare’s body, the umbilical cord still attached and pumping blood. “I wanted to know why the umbilical cord stays intact, because I couldn’t imagine that it was accidental,” he says. “In no other species does it do that.”

“Until recently we assumed that the only reason for the cord to stay intact was so that any blood that belonged to the foal could drain back from the fetal membranes,” says Volkmann. But he has now demonstrated that for at least several minutes after birth many foals are, in fact, pumping blood back into the placenta and picking up maternal oxygen, rather than relying exclusively on normal respiration through the lungs.

“To better interpret that finding we needed to demonstrate that the oxygen content in the blood that returns to the foal isn’t higher simply because of a difference in the red blood-cell count,” he continues. So he took blood samples from the inbound and outbound vessels of three umbilical cords while the foals were still attached to their mothers. Laboratory analysis showed no change in the number of red blood cells. Volkmann was surprised to find, however, that all three foals had given up 25 percent of their white blood cells in the exchange. He has since tested almost 60 more umbilical cords, and this phenomenon has turned out to be very consistent in full-term foals.

The loss of white cells does not seem to matter at all to the foal. “We see some very low counts and some very high counts,” he explains, “but the difference of 25 percent is consistent. If there are 5000 white blood cells in the umbilical artery, then there will be 4000 in the vein. If there are 15,000 in the artery, there will be 12,000 in the vein.” Still, says Volkmann, “there has to be a reason for a neonate to surrender 25 percent of its protective cells. Blood circulates into the membranes, the red cells all come back, and the white cells don’t.”

To add to the intrigue, Volkmann has discovered that the 25-percent rule applies consistently only to full-term, spontaneous deliveries. “It is not so consistent when I induce the mares to foal,” he remarks. “These mares deliver the foal under abnormal conditions, and then I have seen either this white-cell pattern to be reversed in some mares, which means that I get more white cells back from the membranes than are going in, or else the white-cell count is the same in the two vessels.”

The abnormal conditions Volkmann is referring to concern the failure of the fetal membranes to separate normally in pre-term labors. While membrane separation usually takes place uneventfully between 30 minutes and two hours after normal deliveries, the process often goes awry in even only slightly pre-term deliveries. In such cases veterinarians see one of two problems, either a retained placenta or “red-bag” syndrome.

A retained placenta takes an invariable 48 hours to detach, says Volkmann. “With no more circulation to the placenta, bacteria sit there in this perfect environment to do great harm, and horses — and cows — suffer severe toxic metritis after birth if the membranes don’t come away,” he explains.

“We probably had ten mares with retained membranes in the clinic this year,” he says. “We do all kinds of mechanical things to try to get the membranes out, because we know that if they stay in there they get infected. And then it’s treated really effectively. But if we left it alone, the mare would certainly die in 30 to 40 percent of cases. If we better understood what makes the membrane stick in the first place, we might find better ways of getting rid of it.”

Red-bag syndrome gets its name from the characteristic protrusion from a mare’s vulva of a prolapsed section of the intact outer membrane surrounding the fetus. This red membrane, the alanto chorion, is supposed to soften at
Dietrich Volkmann and Katherine Edmondson, the College's assistant dean for learning and instruction, pose with her dog's three-week-old litter of Labrador retrievers. The puppies were conceived via artificial insemination using semen frozen at Cornell. Five of the seven puppies were delivered here.

the point of foaling and break open, releasing a large amount of fluid. If it does not weaken and break, the mare tries to deliver the entire mass at once. "Then you see a red bag filled with fluid," says Volkmann. "For that to travel all the way from the cervix to the vulva — a distance of half a yard — the entire chorion, the membrane that attaches to the inside of the uterus, has to shear off. We call that premature placental separation. So now there's no more functional placenta, and the fetus is dying."

Volkmann says that red-bag syndrome occurs in a low percentage of spontaneously foaling mares. In mares that are induced with oxytocin, even very near to term, however, red bags are typical. "And when we induce mares and they don't have the red bag, they many times have retained membranes instead," he adds. "This process of what makes the membrane either come away early or remain stuck too late relates to some biochemical signal that we haven't found yet."

"In late pregnancy, it is the fetus that makes the big decision to be born," he continues. "That induces a whole cascade of hormonal changes that are initiated in the fetus and, to a large extent, translated in the placenta. The placenta then sends the signal — now it's time to be born." Volkmann hypothesizes that this signaling also prompts the entrapment of the foal's white cells in the placenta.

Volkmann naturally thought that the missing white cells would turn up when he examined the expelled placentas. They didn't. "When we wait for the membranes to be expelled, there is no evidence of the white cells, not one. That means that they must have degranulated, or autodigested."

The type of white cell involved in the entrapment mechanism is the neutrophil, a small cell whose job is to engulf bacteria and destroy dying tissue. "Neutrophils are the most active cleaner-uppers in the blood stream," says Volkmann. Just as he has found that the neutrophil entrapment happens only with full-term deliveries, he has found that premature foals have not yet developed the levels of neutrophils relative to other white cells that can be seen in mature foals. "In mature foals we see almost two neutrophils for every lymphocyte," he says. "In premature foals we see more lymphocytes than neutrophils. So even if the mechanism for entrapment existed earlier on, the ability to generate enough neutrophils to have an impact on the membranes develops very late in pregnancy."

Volkmann has begun collecting punch biopsies from the fetal membranes immediately after the birth of the foal in the hope that he can catch the entrapped white blood cells in the act of effecting membrane separation. He is also taking a tissue sample from the mare's endometrial layer after the membranes are expelled so that he can study this process from both sides of the placenta.

This summer he plans to harvest placental and endometrial tissues from several mares that are induced to foal very close to term and compare those to tissues from full-term deliveries and early abortions. He will culture cells from all three groups and study whether the cells of the late-pregnant mare, the early-pregnant mare, and the mare at term have different attractions for neutrophils. "We are hypothesizing that this attraction happens only at term," he says. "We are also hypothesizing that we have only seen the tip of the iceberg. The samples we are studying are all collected after birth, hopefully giving us an idea of what is happening before birth. We are also only looking at the fetal side of things, because those are the tissues that we can access. If fetal neutrophils are attracted to the fetal membrane at that point, how about maternal neutrophils being attracted to the endometrium? Perhaps the interface between fetal and maternal tissues is the target of the neutrophil."

Although a lot of the demand for reproduction services involves horses, Volkmann and his clinical colleague, Carlos Gradil, see patients in the Companion Animal Hospital as well. Volkmann also has research interests on the canine side, particularly in the area of estrus synchronization.

While most other female mammals cycle at three- or four-week intervals, bitches come into heat only once or twice a year. "If we want to do an embryo transfer, for instance, in any other species, we can inject two animals with prostaglandin, and we know that next week they'll be in heat together," he explains. "We'll breed the one, and a week later we can remove her embryo and implant it in the other, because their cycles are synchronized. In dogs, we can't do that."
Volkmann credits Michelle Kutzler, a theriogenologist who was then working toward her PhD in the laboratory of professor Peter Nathanielsz, with suggesting that he try to synchronize estrus in the beagles that he uses to teach canine reproduction to the veterinary students. "When it's time to teach students about horses, we have cycling mares, and the students can do rectal palpations and feel the ovaries, the follicles, and the corpora lutea. They can scan them with ultrasound and make them pregnant. When you teach a dog course, you have 20 bitches, and you hope that one or two might come into heat. So you cannot provide sufficient opportunity for students to get hands-on experience."

Until recently, that is. In work begun with Kutzler and continued with retired Cornell reproductive physiologist Patrick Concannon, Volkmann has developed a technique for stimulating canine estrus on demand. He is using an implantable, timed-release formulation of deslorelen, a more potent synthetic analog of the hormone GnRH that became available about three years ago for use in horses. Volkmann and Concannon are still working out the optimum dosages for various sizes of dogs, but the principle has proven successful for delivering a steady dose over the desired period of time.

Volkmann and Concannon are now studying the ways in which these induced heats differ from spontaneous ones. They are interested in determining whether it is possible to impregnate a bitch after stimulating estrus during the two-month period of pseudo-pregnancy that follows the onset of every heat. "Pregnant or not," Volkmann says, "a bitch goes through two months of pregnancy or pseudo-pregnancy, which are hormonally almost identical. After that period, she goes through two months of remodeling of the uterus, whether she has been pregnant or not. The processes seem to be on autopilot, and, theoretically, at least, they can't fall pregnant during the pseudo-pregnant phase, even if I can get them to come into heat." Volkmann currently has seven such bitches in heat and will try to impregnate them and learn what kind of hormonal support might be necessary to allow them to carry those pregnancies.

"The beauty of this is that we have a need for bitches to come into heat for teaching purposes, and so far we've been able to marry our research and the teaching need, very nicely," he says. Furthermore, by working out the GnRH dosage in German shepherds bred for professor Sydney Moise's research on inherited cardiac arrhythmias, he is supporting her program as well.

"The College is very keen that we interact with more basic physiologists, and I couldn't find a better one than Patrick Concannon," continues Volkmann. "We have a super hormone laboratory in the Animal Health Diagnostic Laboratory with Steve Lamb in charge, and we have the wonderful services of radiologist Amy Yeager in the ultrasound facility. This really illustrates how Cornell's resources can be put to use to support one individual's ideas. You need tons of expertise, and it's all right here."

"We need to continually acquire the skills to retain our status as the best veterinary institution, both clinically and in research, in the United States," he concludes. "As a relative newcomer here, I think there's nothing we cannot do."

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**Breast Cancer Program Moving to CVM**

by Roger Segelken, Cornell News Service

The College of Veterinary Medicine will become the new home of BCERF, the Cornell Program on Breast Cancer and Environmental Risk Factors in New York State.

Since 1995 the BCERF program has been part of the Cornell Center for the Environment (CfE) in the College of Agriculture and Life Sciences. But the program's future has been uncertain since CfE announced a reorganization six months ago.

Donald F. Smith, dean of the College of Veterinary Medicine, hailed the move as a positive step, saying, "BCERF is a worthwhile program that is vital to understanding risk factors for breast cancer. The program will benefit from bringing breast cancer educators and researchers into an environment rich in comparative biomedical research and cancer biology."

Smith noted that a three-month feasibility study indicated that a merger into CVM could preserve BCERF's basic mission of critical analysis and communication while broadening the program to reflect the veterinary college's research programs in cancer biology and oncology. BCERF's staff, he said, also would be able to collaborate more closely with faculty in the College's Comparative Cancer Program.

Rodney Page, director of the cancer program, added: "I'm very excited about the growth of the program with the expertise and reputation of BCERF staff. It is an exceptional opportunity for the College to promote the commitment to both animal and human health."

Suzanne Snedeker, BCERF's director of translational research, expressed optimism about the program's new departmental home, noting, "We look forward to building on our relationships with the Comparative Cancer Program. So much can be gained by understanding the cancer process and environmental linkages through the use of animal models."
"Just don’t call them mad mice"

by Roger Segelken, Cornell News Service

Some mice with a genetic mutation for mahogany-colored coats also develop spongiform degeneration of brain tissue, similar to mad cow disease. Because of this oddity, the mice could be valuable animal models for human disorders, such as Parkinson's and Alzheimer's diseases, according to geneticists at Cornell and Stanford University.

The surprising discovery in a mouse strain known to geneticists since the 1960s is reported in the January 31 issue of the journal *Science* by Teresa M. Gunn, Gregory S. Barsh, and their collaborators as “Spongiform Degeneration in mahoganoid Mutant Mice.”

“Just don’t call them mad mice,” said Gunn, an assistant professor of genetics in Cornell’s College of Veterinary Medicine who began the research in Barsh’s laboratory at Stanford. “We do see the same kind of tissue degeneration — with fluid-filled vacuoles, or holes, where the gray matter should be — in BSE cattle with bovine spongiform encephalopathy and in these mutant mice. But the mice don’t have the same motor coordination problems as mad cows, and the condition is not lethal.”

Rather, the mutant mice exhibit little more than a slight tremor when they begin to move; they live a normal life span for their species; and they are able to reproduce, Gunn said. Nor did the investigators find evidence of misshapen prion proteins (the cause of spongiform encephalopathies such as mad cow and mad elk diseases) in the mice, although they did see damage to the myelin sheaths around nerve cells. Among other distinguishing characteristics of the mutant mice are curly whiskers and slightly curly body hair, as well as the habit of clasping their hind feet together when lifted off the ground. Normal mice tend to splay their legs straight out when they are elevated, Gunn explained.

Furthermore, this form of neurodegeneration is not known to be contagious, Gunn said, noting: “A cat that eats a mahoganoid mutant mouse — should one escape from the laboratory — would not get spongiform encephalopathy.”

The researchers were looking for effects that might be linked to mutations in pigmentation genes. They knew that a loss of function in the so-called Mahogunin gene causes a partial reduction in the amount of yellow pigment, so that the mice were left with only small patches of yellow hair on mostly black bodies. But they were surprised to learn that a complete loss of function in that gene produced all-black mice with brain neurodegeneration. Linkages
between unusual pigmentation and neural defects are not unheard of in the animal world, Gunn added, citing predominantly white dogs, such as Dalmatians, that sometimes are deaf.

As an animal model, the mahogany mutant mice probably will not be useful to study spongiform encephalopathies like mad cow disease, Gunn believes, because rogue prions are not the cause of the mouse condition. But as an example of defective ubiquitination — a protein-related process involved in many neurodegenerative disorders, including Parkinson’s and Alzheimer’s diseases — the mahogany-colored mice with spongy brains could have real value, according to the Cornell scientist.

And the mutant mouse probably isn’t patentable because it has a naturally occurring defect that the researchers did not create and because the mice already are commercially available.

However, Gunn suggested, further work with the gene responsible for the neurodegenerative condition might result in patent applications.

Gunn credits Cornell undergraduate student Aaron F. Jolly for his research assistance in the study. Jolly is one of eight co-authors of the Science report. The study was supported, in part, by grants from the National Institutes of Health and the American Heart Association.

Remembering Franklin M. Loew, former dean

Franklin M. Loew, DVM ’65, eighth dean of the College of Veterinary Medicine, died of cancer on April 22 in Boston, Massachusetts. He was 63 years old.

At the time of his death Loew was president of Becker College in Worcester, Massachusetts. During his four-year tenure there Becker added four degree programs, instituted study abroad, and increased enrollment by 1,000. “I think I do best when I am building or reinventing something,” he said in 2001 about his efforts to raise Becker’s visibility. For the same reason he had left Cornell in January of 1997 to become president of Medical Foods, Inc., a start-up company that developed convenient foods for special diets.

Two years after receiving his DVM from Cornell, Loew became a founding faculty member of the Western College of Veterinary Medicine at the University of Saskatchewan. While there, he earned a doctorate in nutrition as a member of the group that developed canola oil, an achievement for which he was awarded the Queen Elizabeth II Jubilee Medal by the governor-general of Canada. He stayed on as a professor of physiology and director of the research program in toxicology until 1977, when he moved to Johns Hopkins University School of Medicine as director of the Division of Comparative Medicine.

Loew is best known in academic circles for his remarkable accomplishments in his next post as dean of the School of Veterinary Medicine at Tufts University. The two-year-old school was struggling to survive when he took over the deanship in 1981; over the next nearly 14 years Loew would bring it to national prominence as a highly competitive institution and a leader in partnering with the area’s biotechnology industry. From its first graduating class of just over 30 students in 1983, Loew built enrollment to the level of 75 to 80 graduates per year by 1995, the year he left Tufts for Cornell. Starting from an alumni base of zero, he raised more than $45 million for the school by developing other constituencies. He increased female representation on the faculty to 35 percent, earning a citation from the Association of Women Veterinarians. Loew was also instrumental in developing the university’s 250-acre biotechnology park and served during his last two years at Tufts as president of the Tufts Biotechnology Corporation. With the help of an anonymous donor, the university in 1994 dedicated the Franklin M. Loew Veterinary Medical Education Center in his honor.

Loew was a national leader in animal welfare. He belonged to the boards of directors of the Humane Society of the United States and the Massachusetts Society for the Prevention of Cruelty to Animals, which named him veterinarian of the year in 1989. For his humane work he was also honored in 1983 by the Canadian Federation of Humane Societies and in 1994 by the Scientists Center for Animal Welfare. He served as a trustee of the New England Aquarium, the Marine Biological Laboratory at Woods Hole, Massachusetts, and the Boston Zoological Society, of which he was chairman, and as an advisory-board member of the National Reference Center on Bioethical Literature within Georgetown University’s Kennedy Institute of Ethics and of Harvard University’s Primate Research Center.

“Frank fervently sought innovative yet practical ways to make veterinary medicine more responsive to society’s changing view of the relationship between people and animals,” said Donald F. Smith, Loew’s successor as dean of the College. “The direction in which he was leading the College, as he had done at Tufts, reflected his strong belief in the humane treatment of animals in research, agriculture, and pet care. This was one of the many qualities for which I and others will remember him with respect and admiration.”
David Lin receives national recognition

Neurobiologist David Lin, PhD, assistant professor of biomedical sciences, received two prestigious national awards this spring that recognize the promise of his research on neuronal signaling by the olfactory system. Lin’s research focuses on the mouse olfactory system and how neurons in the nose are able to identify their appropriate targets in the brain. He uses this model system to investigate axonal guidance and target selection in the nervous system.

Lin has been named one of 20 recipients nationally of a Beckman Foundation Young Investigator grant for 2003. The grant will provide $240,000 to Lin’s research over a three-year period. The Young Investigator grants from the Arnold and Mabel Beckman Foundation are intended to support the most promising of young faculty members in the early stages of their academic careers in chemistry and the life sciences.

Lin is also one of three Cornell faculty members to be named Alfred P. Sloan Foundation fellows, an honor bestowed this year on 117 outstanding young researchers from 50 colleges and universities in the United States and Canada. The fellowship carries with it an award of $40,000 over two years that can be used to pursue any line of scientific inquiry.

Lin joined the Cornell faculty in 2001 after earning a PhD in molecular biology at the University of California, Berkeley.

Michael Kotlikoff, VMD, PhD, professor and chairman of the Department of Biomedical Sciences, participated in a panel discussion during a scientific forum held April 12 at the Library of Congress in Washington, DC. The panel, “Accelerating Discovery: A New Paradigm for Addressing Medicine, Food Production, and the Environment”, was one of two included in the forum, “The Power and Promise of Life Sciences”. The other panelists with Kotlikoff were Nelson Hairston, Cornell’s Frank H. T. Rhodes Professor of Ecology and Evolutionary Biology, and Susan McCouch, an associate professor in Plant Breeding. Keynote speaker for the forum was Claire Fraser, president and director of the Institute for Genomic Research and a member of the Baker Institute’s advisory council.

William Miller, VMD, DACVD, professor of medicine and medical director of the Companion Animal Hospital and Danny Scott, DVM, DACVD, professor of medicine, have written a new textbook, Equine Dermatology. Published by Saunders, the text discusses practical diagnostic methods, therapies, and a broad spectrum of diseases and other abnormalities.

John Parker, BVMS, PhD has returned to the Baker Institute, his research home from 1994 to 2000 while he was a graduate student and postdoctoral fellow, as an assistant professor of virology. Parker has spent the intervening years as a postdoctoral research fellow in the Department of Microbiology and Molecular Genetics at Harvard Medical School. He also spent ten years in private veterinary practice after graduating from the University of Glasgow. Parker’s research concerns the formation, function, and cytopathic effects of the viral inclusion bodies found in reovirus-infected cells. He is also investigating similarities between viral inclusion bodies and the inclusions found in association with certain neurodegenerative diseases.

Tracy Stokol, BVSc, PhD has joined the Department of Population Medicine and Diagnostic Sciences as an assistant professor. Stokol first came to Cornell in 1993 as an instructor in clinical pathology; after three years in that position she was promoted to assistant professor in the Department of Biomedical Sciences. In 2000 she left to take a research fellowship in the vascular research division of Brigham and Women’s Hospital at Harvard Medical School. Stokol received her veterinary degree with first-class honors from the
University of Melbourne, where she also completed PhD studies of von Willebrand disease in dogs. Her current research involves assessing the role of leukocyte adhesion molecules in recruiting leukocytes to sites of immune-mediated inflammation.

Kim Baldwin, LVT has been named Technician of the Year by the New York State Association of Veterinary Technicians for her contributions to the veterinary technology profession within the state and on a national level. Baldwin is the education coordinator for the Cornell University Hospital for Animals.

Sean Cobb, RPh has been named a Diplomate of Veterinary Pharmacology by the International College of Veterinary Pharmacists. Cobb is one of only three veterinary pharmacists to have earned this certification, which required the successful completion of a two-year, 15-module proficiency program in veterinary pharmacology.

Michael Wildenstein, who last year earned certification as an associate of the Worshipful Company of Farriers, has recently achieved the Company’s highest rank, that of Fellow with Honors. He becomes the fourth farrier in the world to be awarded this designation, which is based on the results of a rigorous examination. The Worshipful Company of Farriers is a centuries-old professional organization based in the U.K.

George W. Abbott, DVM ’45 was honored during the Annual Conference for Veterinarians in March with the Daniel Elmer Salmon Award by the Alumni Association of the College of Veterinary Medicine. In 25 years of service to Cornell he has been a member of the College’s Advisory Board and Development Committee and the University Council. He is currently working to develop a student mentoring program as a member of the Alumni Association Executive Committee.

Dr. Abbott, who retired to Ithaca, also volunteers at the Southside Well Pet Clinic that is administered and staffed through the community practice service of Cornell’s Companion Animal Hospital. He began his professional life as an associate in the Jamaica, New York practice of Louis Corwin, DVM ’19. After two years of service in the U.S. Air Force, Abbott opened his own practice in Worcester, Massachusetts in 1953. He left that in 1979 to become a consultant to Angell Memorial Hospital in Boston and CEO of a three-hospital consortium. During that time he also served as vice-president of health and hospital services for the Massachusetts SPCA. From 1985 to 1987 he was an associate professor at Angell Memorial, which had become the veterinary teaching hospital for Tufts University. He retired in 1987.

Dr. Abbott has served as president of the Massachusetts Veterinary Society and of the American Animal Hospital Association, and in 1974 was named AAHA Practitioner of the Year for the Northeast Region. The AAHA also recognized him in 2002 when he attended his fiftieth consecutive meeting of that organization.

The Salmon Award is given annually to a Cornell DVM alumnus for “exemplary effort on behalf of the College”. Previous recipients, in reverse chronological order, have been John Shumway ’56, Robert Hillman ’55, Robert Lynk ’61, Harold Zweigafth ’56, Robert Manning ’55, Francis Fox ’45, John Brennan ’52, Louis Schimoler ’47, Stanley Aldrich ’50, Richard Grambow ’57, Richard A. Smith ’51, Robert Kirk ’46, Robert Clark ’52, Stephen Roberts ’38, John Murray ’39, Arthur Danks ’33, Ellis Leonard ’34, and Frederick Wright ’41.

CVM retains first-place ranking

Cornell’s College of Veterinary Medicine has once again been ranked number one by U.S. News & World Report. Cornell also received first-place ranking in 2000, the most recent previous year in which veterinary colleges were ranked. In the current rankings Cornell scored 4.4 out of a possible five points. Colorado State, in second place, scored 4.2, and the University of Pennsylvania, in the number-three position, scored 4.1.
The profile of Francis Fox that opens this newsletter underscores Cornell's extraordinary legacy of excellence and the manner in which that heritage is passed down from generation to generation. In my commencement address to the Class of 2003, I urged the new graduates to value their mentors and to seek, as their careers unfold, to be mentors for others. It is part of the "payback debt" that we all carry, and it is an obligation not to be taken lightly.

Even as decades of graduates speak about the abiding impact that Dr. Fox had on their personal and professional lives, Professor Fox himself speaks with unfettered praise of the impact that his mentors, W. H. Salisbury and Denny Udall, had in shaping his thinking and perspective. Most veterinarians can point to a mentor or mentors who instilled in them the passion to pursue a career in animal health, and through whose influence their professional lives were shaped. Whether in the arena of clinical excellence or research, students are drawn into the sphere of those professors who connect with their interests in a personal way, and whose critical review is balanced by boundless encouragement. Personal interaction creates a more lasting impression than classroom teaching and inspires new thinking that can shape careers.

For the professor, the rewards of time spent one-on-one with students are deep and abiding. Like all teachers, I am somewhat embarrassed when a former student or resident mentions the lasting impact of a lecture or demonstration or—as one did recently—a conversation we had while scrubbing for a cow surgery some two decades ago. What may seem a passing conversation or interaction for the professor can, on occasion, influence a life's work.

Cornell is blessed with an abundant legacy of leadership throughout the profession. Graduates have successively gone forth for more than a century, imbued with the hopes and dreams of their teachers. Nothing has given their mentors greater joy or fulfillment than to see them in turn guide and support those who come next. Connecting through generations is at the heart of teaching and learning. It also keeps us mindful of the continuing need to honor, support, and encourage the enlightened progress of the institution that provides the foundation for those relationships.

Not surprisingly, the concept of mentoring resonates with particular strength with the Executive Board of the College's Alumni Association. With their encouragement and leadership, they endeavor to unite students with alumni of mutual interests. Connecting to strengths outside the university broadens students' experience and judgment, even as it builds their esteem for Cornell.

Mentoring provided by members of the New York State Veterinary Medical Society has contributed greatly to the impact of organized veterinary medicine within New York and nationally. From the era of our first graduate, Daniel Salmon, Cornell has produced a notable share of A.V.M.A. presidents and Executive Board members.

For spouses of veterinarians, the intergenerational mentoring provided through the Auxiliary to the State Society has reinforced bonding within the professional community and served to advance the work at Cornell by providing scholarships, student loans, and other forms of program support.

A special type of mentor-teacher relationship exists with true legacies: sons and daughters of veterinarians who develop, usually from an early age, a respect and awe for veterinary medicine and animal health, and who determine to follow in one—or both—parents' footsteps. Most veterinary classes are endowed with two or more legacies. For one of this year's graduates, the family tree extends to the third generation.

The patriarch of veterinary medicine at Cornell was, of course, James Law. An original member of Cornell's faculty in 1868 and our founding dean until 1908, Professor Law mentored a generation of both students and professors, reinforcing the concept of a science-based education through word and deed. Unlike the majority of his contemporaries who were seldom inclined to align veterinary medicine to comparative medicine or to the rigors of the scientific method, Law built a college that was revolutionary in thought and creative in design.

The more we understand and value Law's legacy, the more we realize the extraordinary challenge and obligation that this generation of mentors has in continuing to fulfill his noble dream. That, I believe, would also resonate favorably with Francis Fox!
coming events

**JULY**
19–23 AVMA Annual Convention, Denver, Colorado
25–27 Fred Scott Feline Symposium, Cornell

**SEPTEMBER**
18–20 American Association of Bovine Practitioners Conference, Columbus, Ohio

**OCTOBER**
3–5 NY2K Veterinary Conference, Saratoga Springs, New York
16–18 Trustee/Council Weekend, Cornell
24–26 Homecoming Weekend, Cornell

**NOVEMBER**
13–14 Equine Conference, Cornell
15–16 Farriers Conference, Cornell
21–25 American Association of Equine Practitioners Conference, New Orleans, Louisiana