When epidemiologist Steven W. Eicker, DVM, PhD, Dipl. ACVA, turns on his computer at 7:00 a.m. he checks his electronic mailbox first. Typically, he'll find 20 or so messages, among them a query from a Wyoming County bovine practitioner on, say, the recovery rates following displaced abomasum, or normal incidence of spontaneous abortion. Within minutes Eicker can e-mail a reply.

Dr. Cornelia E. Farnum, DVM, PhD, chair of Anatomy, gets e-mail inquiries about postdoctoral fellowships from as far away as Michigan and Argentina. Dr. John E.A. Bertram, MS, PhD, assistant professor of anatomy, and an expert in biomechanics, finds the latest installment of an ongoing exchange with an Australian collaborator in research on spinal function in animals.

There are now more than 550 networked computers in the college and, through a university-supplied hook-up, they can access the rest of the world via the Internet. Simple, quick, and economical, e-mail has become a primary mode of communication for many faculty. Clinicians, too, use the Net for consulting with colleagues at other teaching hospitals, and will increasingly answer questions from the field as more of the profession goes online.

Students use e-mail as a straightforward way to set up office appointments with teaching faculty; in the foundation course Function and Dysfunction they even write exams on college computers and turn them in electronically.

Bertram, who maintains an extensive e-mail network of colleagues, sees it as a means of raising the quality of both teaching and research. "I can put together far better courses by gathering the latest information directly from the experts, whether they're down the hall or on another continent," he notes, and "productivity as well as the sophistication of research results increases because you can get correct answers to lots of specific questions so easily on the Net."

And from a service standpoint, e-mail can circumvent the inevitable 'telephone tag' that occurs between busy referring veterinarians and clinicians in the college's teaching hospital. Dr. Richard P. Hackett, DVM, MS, Dipl. ACVS, associate professor of large animal surgery, says, "It usually only takes a couple minutes to discuss the medical aspects of a case, but if someone calls me, I'm often in surgery or in a meeting, so they leave a message. Then when I call back, they're on the road, so I leave a message. On the other hand, I can reply to e-mail right away and refer the information as soon as they check their own e-mail."

"The future is really exciting for developing a better dialogue between practitioners in remote areas and specialists here at the Vet College."

Dr. Richard Hackett
Challenges Ahead for the College

Challenges aplenty await the faculty and the new dean who will lead Cornell’s College of Veterinary Medicine into the twenty-first century. To get an idea of what our faculty and alumni think are the most important issues, we talked with current dean Robert D. Phemister (DVM ’60, PhD), associate professor of immunology Dr. Judith A. Appleton (MS, PhD), alumnus and chair of the College Advisory Council Dr. Richard C. Grambow (DVM ’57), and director of the Veterinary Medical Teaching Hospital Dr. Francis A. Kalfelz (DVM ’62, PhD, Dipl. ACVN). Drs. Appleton and Grambow are members of the search committee appointed to select the new dean.

The four central issues that emerged from our conversations are summarized below.

• Balancing the teaching, research, and clinical service missions of the college—

The most crucial challenge in the coming years—as sources of both public and private monies tighten—will be to create an environment in which each mission flourishes. During the past four years, the college has made a substantial investment in a new professional curriculum. As that momentum continues, our supporters, including alumni, need to be told clearly and often how this new curriculum differs from the old and why it is better. How can this be achieved most effectively?

More than 80 percent of the college’s DVM students will enter private practice. Referral cases treated at the Veterinary Medical Teaching Hospital are critical to their training. How will the college compete for referrals with the growing number of specialist practitioners, many of whom are graduates of the college’s own residency training programs?

Conducting meaningful studies on problems related to animals and those using animal models for human disease is increasingly expensive. How will the faculty’s high level of veterinary biomedical research be sustained? Since federal research dollars are largely tied to projects intended to improve human health, how will the college continue its commitment to the well-being of animals? Will there be funds for the new technologies as research moves toward examining disease processes at the cellular and molecular level?

Since professional advancement depends on doing original research and publishing findings, how can clinical faculty remain available to provide expert instruction to veterinary students as well as consult with practitioners in the field? How can the college most effectively demonstrate its obligation to serve practitioners and the people of New York State and the Northeast?

Achieving greater ethnic diversity among the student body and providing more opportunities for women to advance in academic and administrative positions are among the challenges ahead for the college and its new dean.

• Creating gender and ethnic diversity—

The past 15 years have seen an influx of women into veterinary schools and private practice while ethnic minority participation has remained static. How can more minority students (and some would say, men) be encouraged to enter the field, and how can more women be encouraged to enter faculty and administrative positions?

• Controlling the cost of veterinary education—

Professional and graduate education must become more affordable in terms of time and money. DVMs graduate with eight years of higher education into a profession with a future earnings potential becoming insufficient to overcome indebtedness. Additional training of up to 10 years is now required to attain advanced degrees and develop the scientific and clinical expertise to compete for positions at academic institutions. How can veterinary education be streamlined while retaining high quality?

• Redefining the role of veterinarians in society—

Changes in the economy and in human populations radically alter our relationship to animals. For now, the college must become more involved in issues of public concern, such as food safety and the processes of production agriculture, with less emphasis on the diseases of individual animals and more on the management of herds.

What role will animals play in American society in the next 50 years? How can veterinary education best prepare its graduates to enter that world?
People, Honors, and Awards

Dr. Leland E. Carmichael, DVM, PhD, Dipl. ACVM, received an honorary doctorate from the University of Liège in Belgium in September 1994. The degree of Doctor honoris causa was conferred by the faculty in veterinary medicine. At Cornell, Dr. Carmichael holds the endowed John M. Olin Professorship of Virology in the college’s Baker Institute for Animal Health and is the director of the Institute’s Giralda Laboratory for Canine Infectious Diseases.

Dr. Geoffrey W. G. Sharp, PhD, DSc, professor and chair of the Department of Pharmacology, was invited to Japan in November 1994 to participate in the 15th Congress of the International Diabetes Federation held in Kobe and in a satellite meeting on the “Pancreatic Beta-Cell” held in Kyoto. Dr. Sharp, who has been studying the control of insulin secretion, and his colleagues Dr. Mitsuhiro Komatsu and Dr. Susanne Straub, presented papers on their recent research. Sharp also lectured at the Shinshu University School of Medicine in Matsumoto. He will return to Japan in May to give the plenary lecture on the opening day of the 1995 meeting of the Japan Diabetes Society. The title of his talk will be “Stimulatory and Inhibitory Mechanisms Regulating the Rate of Insulin Secretion in the Pancreatic Beta-Cell.”

Dr. Kenneth W. Simpson, BVM&S, PhD, Dipl. ACVIM and ECVIM, has joined the faculty in the Department of Clinical Sciences as an assistant professor of medicine. His clinical expertise in gastrointestinal diseases will be an asset to the small animal internal medicine service in the Veterinary Medical Teaching Hospital.

Dr. Mary C. Smith ’72, DVM, Dipl. ACT, associate professor of medicine, was named “1994 Small Ruminant Veterinarian of the Year” by the American Association of Small Ruminant Practitioners. She was cited for “outstanding work in furthering small ruminant veterinary medicine. Through talks, articles, and books, she has stimulated students, practitioners, and owners to appreciate the importance of rational management and medicine to the health of small ruminants.”

A faculty member in the Ambulatory Clinic, Dr. Smith also teaches courses on goat management and medicine, poisonous plants, and llama topics. She has been the editor of the AASRP newsletter for the past 10 years and recently published Goat Medicine, a book she co-authored with Dr. David Sherman at the Tufts University School of Veterinary Medicine.

Construction Update

Hospital Units Will Be Moving Soon

The Small Animal Clinic and Medical Records units of the Veterinary Medical Teaching Hospital (VMTH) will begin their move to the new Veterinary Medical Center in early May. Once those operations are established, the Large Animal Clinic and associated services will relocate, probably beginning in June.

The entire shift will be a complex and massive undertaking, involving some 48 clinical faculty, 32 residents and interns, 80 technical, animal care, and administrative support staff, and countless boxes of supplies and crates of medical equipment and furnishings. Anticipating several short periods when each clinic may have to operate on an emergency-only basis, these transfers should be completed before the hospital’s busy summer season begins in mid-June. Referring practitioners will receive updates directly from the VMTH in The Referring Veterinarian newsletter.

After the clinics are settled on the ground floor of the new building, other faculty and staff will begin moving into the offices and research laboratories on other floors. Pharmacology, Avian, and Aquatic Animal Medicine, and Microbiology, Immunology, and Parasitology will move their entire departments into the new medical center. Parts of the Clinical Sciences and Pathology departments also will occupy space on the upper floors, while Laboratory Animal Services will relocate in the basement level. The Veterinary Medical Center is expected to be fully occupied when students return at the end of August for the 1995-96 academic year.

Aerial view of college facilities. The new Veterinary Medical Center is in the foreground.
service that allows faculty to stay abreast of their fields. Dr. Barry J. Cooper, BVSc, PhD, Dipl. ACVP, a professor of veterinary pathology, encouraged the college to establish a flat-rate agreement with the National Library of Medicine for access to its biomedical sciences database.

"The beauty of MEDLINE is that you can search for information related to a particular problem and get both citations and abstracts of published sources, then transfer them to a bibliographic database on your own office computer," he says. In less than a year, MEDLINE use has already surpassed its annual cost. While MEDLINE is current to two months, there is yet another database service (Reference Update) that carries new articles as they appear in print each week!

Not only is the Internet a source of information, but the working tools of science as well. The National Institutes of Health (NIH) developed an image-analysis program to do automatic analysis of gels from video images. It's now being used by a half-dozen laboratories in the college at great savings in research costs. Bertram says, "Rather than NIH providing money in their grants for researchers to buy commercial programs, it developed the program itself and made it available on the Internet. It's the only really good research-grade application program available free for image analysis, and they upgrade it nearly every month. Its uses range from taking measurements under a microscope to reconstructing three-dimensional images to examining locomotion in horses."

College faculty are actively involved in extending Internet resources to practitioners as well. In its first nine months more than 1,200 veterinarians signed on to the AVMA's information service, Network of Animal Health (NOAH)—and an average of 40 more log on each week. Dr. Hackett and Dr. Cynthia Jackson, DVM, a visiting fellow in clinical sciences who specializes in equine neurological diseases, have offered their expertise for NOAH's online conferences. For example, during Hackett's session on laryngeal diseases in horses, 40 veterinarians from around the country spent an evening at their computers, interactively posing questions.

Along with periodic conferences, the NOAH forums can be a source of immediate information, Hackett points out. "Someone having, say, a problematic equine case can describe the situation on the message (bulletin board) section of the Equine Practice Forum in the afternoon. As subscribers scan these messages they can add their own suggestions—usually that same day."

Then there are the "listservs," such as the one that Eicker manages for the American Association of Bovine Practitioners. Available in the United States and Canada, the AABP-L uses a central computer at Cornell to automatically e-mail all subscribers every message sent in. As with the NOAH forum anyone can chip in with suggestions or answers to queries. Dr. Charles Guard, DVM, PhD, associate professor of medicine, and an expert on lameness, answers most of the queries about foot diseases.

"As the profession shifts away from the treatment of individual cows to the economics of herd management, the listserv becomes an extremely fast method of teaching vets, especially about topics that weren't yet offered when they were in school," Eicker explains.

Eicker has also set up a Mosaic (World Wide Web) information server that permits AABP-member veterinarians to download to their own computers documents about new drugs, spreadsheets for analyzing herd management practices, computer software, and more.

John Lewkowicz, director of Computing Services, is supervising the development of two college-wide information servers soon to be accessible to all veterinarians online. One, a Gopher server, and the other, using Mosaic, will provide electronic "one-stop shopping" for a

"Encouraging students to use MEDLINE teaches them good habits, such as to look for the latest information on a subject, which we hope they'll take with them when they graduate."

– Dr. Barry Cooper
range of information and services, including a directory of faculty and their specialties, a job-placement bulletin board, seminars and other continuing education offerings, and e-mail services for clinical consulting and getting Diagnostic Laboratory test results.

"We should offer all our graduates free access to such college resources," says Lewkowicz. "The information superhighway is an unparalleled opportunity to maintain a sense of community beyond the boundaries of the campus."  ■

Join Internet Through CU-CONNECT
Cornell Information Technologies offers all alumni an Internet connection that will allow you to use all the electronic resources mentioned in this article. Cost varies with geographic location. For information contact Rob Bandler at CU-CONNECT: (607) 254-5200.

Last fall while preparing a teaching case for the foundation course Genetics and Development, embryologist Dr. Drew M. Noden, PhD, sought information on the cellular and genetic basis of inherited megacolon in white foals. It took him only a few minutes at his computer to discover that in the past year three different genes had been identified and cloned that, when mutated, resulted in a similar condition in mice and humans. Moreover, before the course ended, two additional genes in humans with familial Hirschsprung's disease had been discovered. This information was incorporated into a problem on the final exam.

Before the Flower-Sprecher Library was electronically linked to MEDLINE, the world's largest biomedical sciences database, Noden would need to: 1) scan nine bound index volumes covering literature published each month in the current year; 2) check perhaps another two or three volumes for earlier years; 3) copy the relevant citations; 4) locate all the journals; and 5) find each article in its issue. If the journals needed weren't held by the college library, a trip to another campus library or a request for an interlibrary loan would be required.

The MEDLINE database, however, allows faculty and students to search for and identify all relevant publications using their office computer (or from home if they have a modem and an account on the university computer network). MEDLINE includes abstracts for about 70 percent of the citations. Thus, it is not always necessary to locate the full article to gain sufficient information.

While Noden was consulting MEDLINE, a fourth-year student preparing her senior seminar project was typing just three keywords (urolithiasis, cats, and therapy) on the search line of the CAB Abstracts database. Within seconds she had abstracts of 70 articles—more than enough information to describe successful methods of managing the disease.

Ease of searching and the availability of abstracts through electronic databases are especially valuable to veterinary students who are exploring new areas and looking for recent reviews or case studies not available in standard textbooks. This year, nearly 80 percent of Cornell's first-year veterinary students utilized electronic resources such as MEDLINE to supplement their coursework.

Access to these databases could be available within a few short years to all practicing veterinarians via computer networks. For now, librarian Susanne Whitaker says that college library staff can conduct online information searches for practitioners and animal owners upon request. There is a charge for search time and for mailing or faxing the citations and/or abstracts. For more information call the Flower-Sprecher Library at (607) 253-3510. ■
NEW GRANTS

In the past few months, a number of college faculty received new research grants. The largest share of this funding has come from the National Institutes of Health (NIH), where each project must be justified in terms of its benefits to human health as well. Some of the recently funded studies are described briefly:

- Lyme disease is a serious, multisystem illness that produces musculoskeletal, cardiac, and neurological symptoms. Antibiotic treatment is usually effective in the acute phase, but often fails in cases of chronic arthritis. Although the progression of Lyme disease has been well documented in all its phases, little is known about the pathogenesis of Lyme arthritis, the recurrent nature of the disease, or about prevention or treatment. Dr. Max Appel, DVM, PhD, and his colleagues in the Baker Institute for Animal Health recently developed an experimental model for human Lyme disease in specific pathogen free (SPF) dogs. Dr. Appel's NIH grant will be used to study the pathogenesis of experimental Lyme arthritis in the SPF dogs. The group seeks to document the sequence of events leading to acute and chronic Lyme arthritis, and to understand the phenomena that resolve the arthritis.

- Feline immunodeficiency virus (FIV) is a lentivirus that causes a disease in domestic and exotic cats that is also an important animal model for HIV infection in humans. Senior research associate Dr. Margaret Barr, DVM, PhD, recently isolated a unique FIV-like lentivirus from an east-Asian wildcat known as the Pallas' cat, which has the potential to significantly advance research on both FIV and HIV.

Unlike most domestic cat FIV isolates, FIV-Pallas infects many types of laboratory-cultured cells and causes rapid cell death in many of these cultures. Dr. Barr, Dr. Roger Avery, PhD, professor of virology, and Dr. James Casey, PhD, associate professor of virology, have received an NIH grant to determine the genetic basis of these FIV-Pallas-induced effects. Their work could lead to improved laboratory testing of antiviral therapeutic agents, and elucidate the determinants for cytolytic activity and host cell tropism.

- Dr. Paula Moon, DVM, Dipl. ACVA, assistant professor of anesthesiology, has received a grant from the Morris Animal Foundation for a pilot study to test the effectiveness of tris-(hydroxymethyl)aminomethane (THAMO) in treating animals affected with metabolic acidosis. Metabolic acidosis is the accumulation of lactic acid and other byproducts of cellular metabolism. It is normally prevented by perfusion of the body's tissues with blood, but in many serious illnesses, such as most cardiopulmonary diseases, perfusion is inadequate and metabolic acidosis leads eventually to death. Sodium bicarbonate was previously used to treat the condition, but is now known to have serious side effects and is generally considered unsafe. Dr. Moon's study will compare the buffering capacity and side effects of THAMO and sodium bicarbonate in an experimental acidic dog model.

- NIH has provided funds to purchase a laser cytometer/cell sorter, which will be used by faculty in six laboratories at the college for ongoing studies on the regulatory biology of cell growth and differentiation in mammalian cells. The instrument analyzes vital or nonvital cells using confocal laser microscopy with fluorescence and phase contrast images. It can quantitate molecules as a function of their localization in or on cells in heterogeneous populations and then sort the cells on that basis.

- A grant from the Ralston Purina Company will support a study led by Dr. Janet Scarlett, DVM, MPH, PhD, associate professor of epidemiology, on the health effects of obesity in cats. Obesity has been called the most common nutritional disease occurring in humans and their pets in the United States. While numerous studies have looked at obesity in humans, little is known about the nature and incidence of diseases and conditions associated with obesity in dogs and cats. Dr. Scarlett's study is designed to investigate the comparative morbidity and incidence of various diseases associated with obesity by determining their occurrence among cats whose body condition has been previously assessed. Characterizing the types of diseases and conditions associated with feline obesity is essential to providing accurate advice to owners of overweight cats.

- Brucellosis continues to be a serious problem in animal populations throughout the world. Current vaccines for cattle and sheep, while effective, also induce antibody responses that interfere with serological diagnosis of the disease, cause abortion under some circumstances, and are pathogenic to humans. In recent years, however, a stable rough mutant of a virulent Brucella abortus strain has shown great promise of being an effective vaccine against B. abortus in cattle, without the side effects noted. Dr. Alexander...
Winter, DVM, PhD, Dipl. ACVM, has received a USDA grant to evaluate the efficacy of various rough mutants of *B. abortus, B. suis,* and *B. melitensis* as vaccine strains against challenge strains representative of the principal *Brucella* species affecting domestic food animal and wild animal populations. The study should advance both optimal design of vaccine trials and development of new and safer vaccines.

* The small animal internal medicine faculty in the Veterinary Medical Teaching Hospital recently received a grant from the Waltham Center for Pet Nutrition to study the dietary management of canine inflammatory bowel disease (IBD). The project will examine the effectiveness of a high-fiber diet as part of a treatment regimen for IBD.

Dogs with IBD that have been referred by practitioners will be monitored at Cornell. The patients will be randomly assigned to one of three treatment groups receiving different diets. Each group will also receive appropriate medications (e.g., prednisone, tylan).

The study will commence this spring directed by assistant professors of medicine Dr. Stephen Barr, BVSc, MVS, PhD, Dipl. ACVM, and Dr. Kenneth Simpson, BVM&S, PhD, Dipl. ACVM.

**Graduate Pharmacology Program Established**

The establishment of a graduate field of pharmacology at Cornell University has been approved by college and university faculties, SUNY, and the New York State Board of Education. The new program is open to students pursuing either the MS or PhD degree, and includes the areas of biophysical pharmacology, neuropharmacology, and biochemical pharmacology.

There is a growing demand for highly trained pharmacologists in medical and scientific institutions, particularly for molecular pharmacologists in interactions between pharmacology and molecular biology. Career paths open to graduate degree-holders in pharmacology include academic positions as well as both human and veterinary medical research positions in federal or state laboratories, industry, and public health agencies.

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**Cornell Takes to the Airwaves**

National Public Radio and talk radio audiences in more than 40 cities and towns across the USA are listening to *Animal Instincts,* a new daily radio program produced by the college. Funded by a grant from the Ralston Purina Company, the program is designed to educate listeners about a variety of health issues that affect companion animals, horses, and their owners, as well as wildlife and exotic animals.

*Feeding Puppies*

When growing dogs get too much to eat, even good food can do lifelong damage. It's *Animal Instincts.*

Each *Animal Instincts* episode is 90 seconds long. All segments are scripted in consultation with college faculty and most include excerpts from an interview with the faculty member. The subject matter is diverse, ranging from basic animal health tips on care and feeding to behavior problems and commentary on social issues such as overpopulation.

Animal behavior specialist Dr. Katherine Houpt has taped 30 segments, including episodes about dogs who are afraid of thunder, how animals mourn, and obedience training. Wildlife professor Dr. George Kollias contributed 17 segments on topics ranging from toxic houseplants to how to feed a python. Radiologist Dr. Nathan Dykes taped a program warning pet owners about objects that can be swallowed by dogs and cats, while Dr. Bud Tennant provided three segments about his research on a form of hepatitis-B virus that causes liver disease and cancer in woodchucks. To date, 15 faculty members and several veterinary students have taped more than 130 programs.

Any young animal needs time to grow. And when the growth process is accelerated, things can go wrong. Veterinary researchers have traced the cause of a number of bone problems in adult dogs—particularly in retriever-size and larger dogs—to too much food early in life.

Dr. Arleigh Reynolds says it's not hard to spot puppies that are overnourished. "First of all, they tend to get larger faster. That's not necessarily to say that they get obese. They just actually get larger faster. So they may look well proportioned and normal, but they're growing too fast. And this may mean that their bones are not developing properly because of the amount of nutrients the pups are getting."

Animal Instincts is now heard daily by an estimated 500,000 listeners in cities such as Albuquerque, Buffalo, Chicago, Cincinnati, Colorado Springs, Detroit, Fort Meyers, Fresno, Galveston, Nashville, Sacramento, and St. Louis, as well as over 1.5 million people reached through the Armed Forces Radio Network throughout Europe. In most markets the program is sponsored by a local veterinary medical association or individual veterinary practice. At the end of each segment, listeners are encouraged to visit their veterinarian regularly.

Dr. Arleigh Reynolds: That's not to say that high-quality diets are bad for growing dogs. What I mean is it's easier to overfeed real high-energy diets to puppies.

Check with a veterinarian to learn the proper weight for a particular dog. As a general rule, a 4- to 8-month-old puppy should be fed so that it will not gain weight faster than 3 to 3-1/2 pounds a week.

For more information about *Animal Instincts,* contact Timothy Redden in the college Public Affairs office, (607) 253-8744.
**1995 Calendar of Events**

Unless otherwise noted, all events are at Cornell.

**June**
- 8-11  Cornell Reunion Weekend

**July**
- 11  Alumni Reception, Pittsburgh, Pa., at the AVMA Conference
- 28-31  Cornell 7th Annual Feline Practitioners Seminar
  (for more information, call 607-253-3200)

**August**
- 12-13  Necropsy Diagnosis Short Course for Veterinary Practitioners
  (for more information, call 607-253-3200)
- 14-18  Olafson Pathology Short Course
  (for more information, call 607-253-3200)

**September**
- 23  Cornell Homecoming
  Annual Alumni Tailgate Party

**November**
- 11-12  Farrier's Conference
  (for more information, call 607-253-3200)

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A sea lion with cataracts, from the Buffalo Aquarium, was referred by Dr. Scott Nachbar (DVM '91) to the Veterinary Medical Teaching Hospital's ophthalmology service in December. Associate professor Ronald Riis, DVM, MS, Dipl. ACVO, performed the surgery to remove the cataracts. Both anesthesia and cataracts are a challenge when dealing with sea lions.

Dr. Riis, Dr. Ben Mohit (small animal intern), and Dr. James Gaarder (ophthalmology resident) measure the ultrasonic characteristics of the globe prior to the surgery.