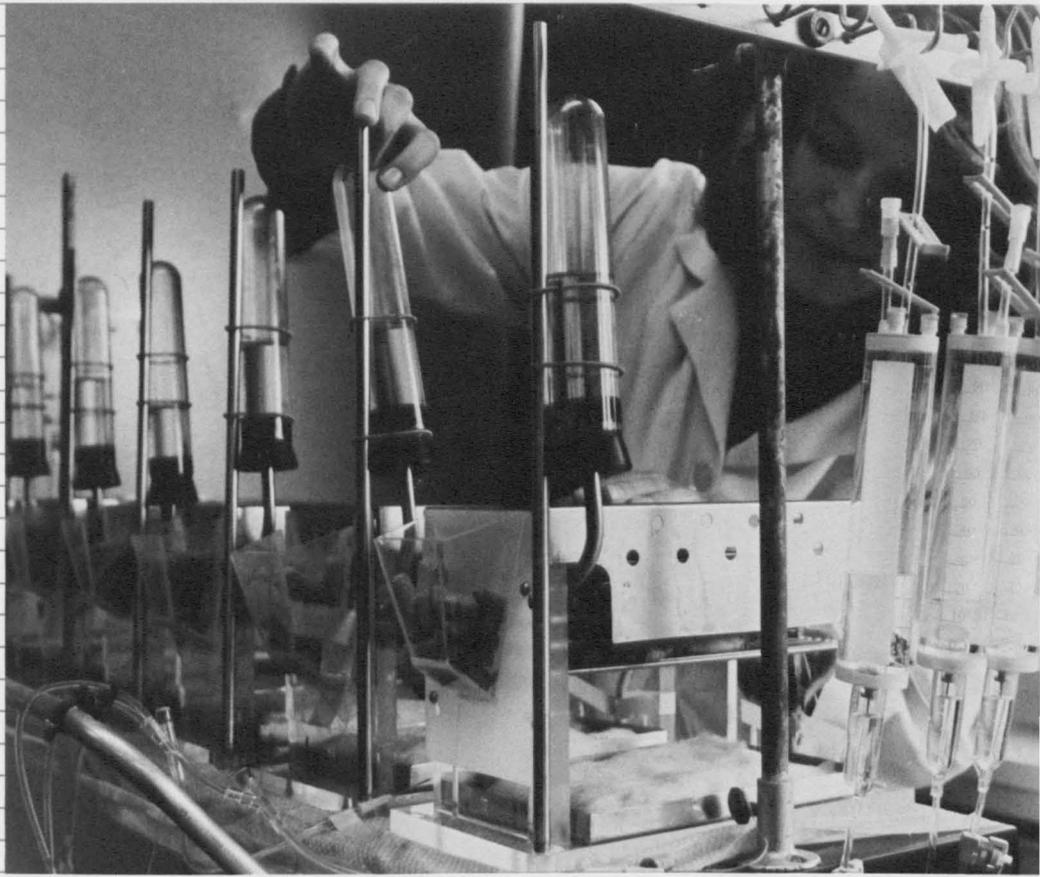


**Annual Report  
1982-83**





**New York State  
College of  
Veterinary Medicine**



A Statutory College of the State University of New York

A Component College of the State University of New York Health Sciences

Cornell University, Ithaca, New York

**Eighty-sixth Annual Report**

July 1, 1982–June 30, 1983

Legislative document number 88

The New York State College of Veterinary Medicine at Cornell University in Ithaca, New York, is the primary health resource for the state's multi-billion-dollar animal population.

The college's mission, mandated by the citizens of New York State through their legislators, is to promulgate animal and human health through education, research, and public service.

This report is a compendium of the activities, during the 1982–83 year, of the students, faculty, and staff who worked to accomplish the mission and thereby to justify the public trust.



**Office of the Dean**

New York State College of Veterinary  
Medicine  
A Statutory College of the State  
University at Cornell

**Office of the President**

Cornell University  
Ithaca, New York

**Office of the Chancellor**

State University of New York  
Albany, New York

September 1, 1983

Frank H. T. Rhodes  
President  
Cornell University

September 14, 1983

The Board of Trustees of Cornell Uni-  
versity, the Chancellor and Board of  
Trustees of the State University of  
New York, and the Governor of the  
State of New York

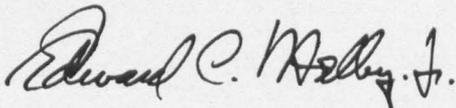
September 28, 1983

The Board of Regents, the Governor,  
and the Legislature of the State of  
New York

Dear President Rhodes:

Pursuant to the requirements of the  
laws of New York State, I present  
herewith a report of the activities and  
the accomplishments of the faculty  
and staff of the New York State Col-  
lege of Veterinary Medicine for the  
year ending June 30, 1983, this  
being the eighty-sixth annual report  
of this college.

Respectfully submitted,

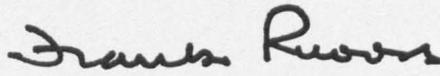


Edward C. Melby, Jr.  
Dean

Ladies and Gentlemen:

In accordance with the requirements  
of Section 5711 of Article 115 of the  
State Education Law, I am pleased to  
submit, on behalf of Cornell Universi-  
ty, the report of the New York State  
College of Veterinary Medicine for the  
year beginning July 1, 1982, and  
ending June 30, 1983.

Sincerely yours,

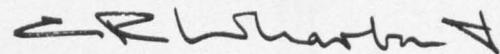


Frank H. T. Rhodes  
President

Ladies and Gentlemen:

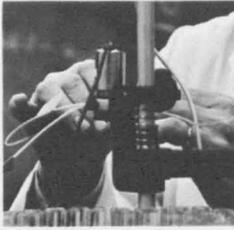
Pursuant to the law, the 1982-83  
Annual Report of the New York State  
College of Veterinary Medicine at  
Cornell University is herewith  
submitted.

Very respectfully yours,

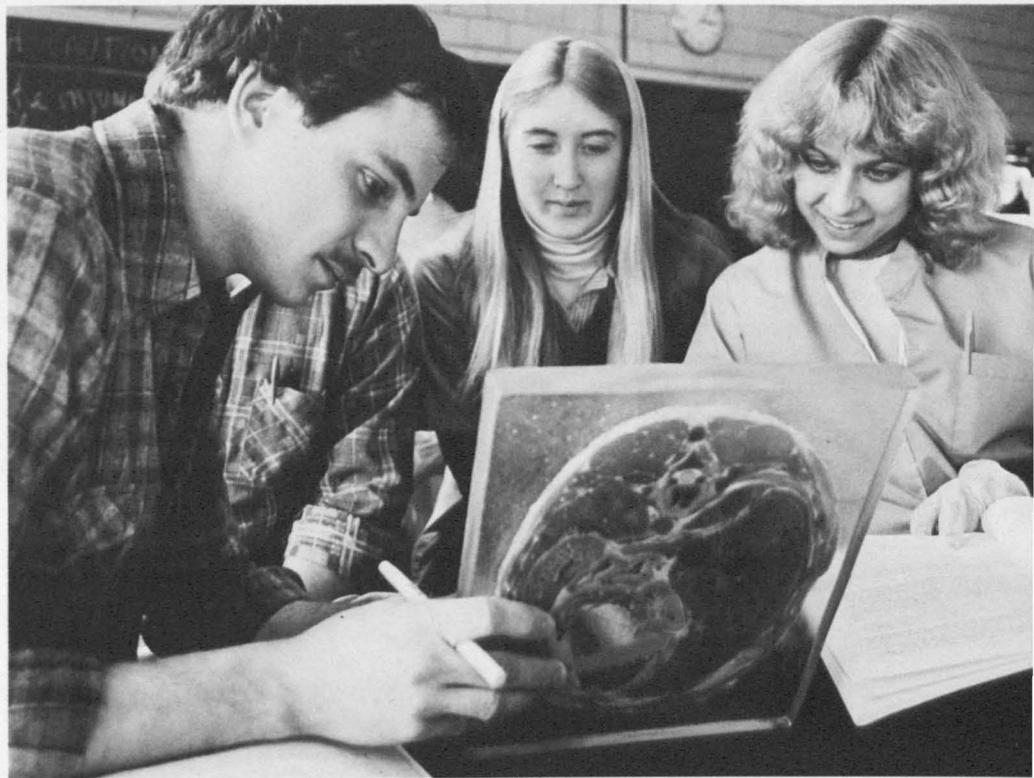


Clifton R. Wharton, Jr.  
Chancellor

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In a somewhat ironic twist, research—especially that which involves living creatures—has itself become a prime topic for study. It is being subjected to intense scrutiny from many quarters and often resembles a target more than a topic. Not all of the probing is being conducted according to principles of scientific investigation: the issue is highly charged with emotional, moral, and religious overtones. These tend to generate powerful crosscurrents that culminate in explosive reactions as they swirl and collide.

The questions, and the stances that are adopted in response, constitute a major portion of the evolving field of bioethics. Bioethics is a new term, if not an entirely new concept, appearing in most dictionaries and the media only during the last few years. Scarcely any branch of human endeavor—medical, social, military, political—is untouched by the storms of controversy it has spawned.

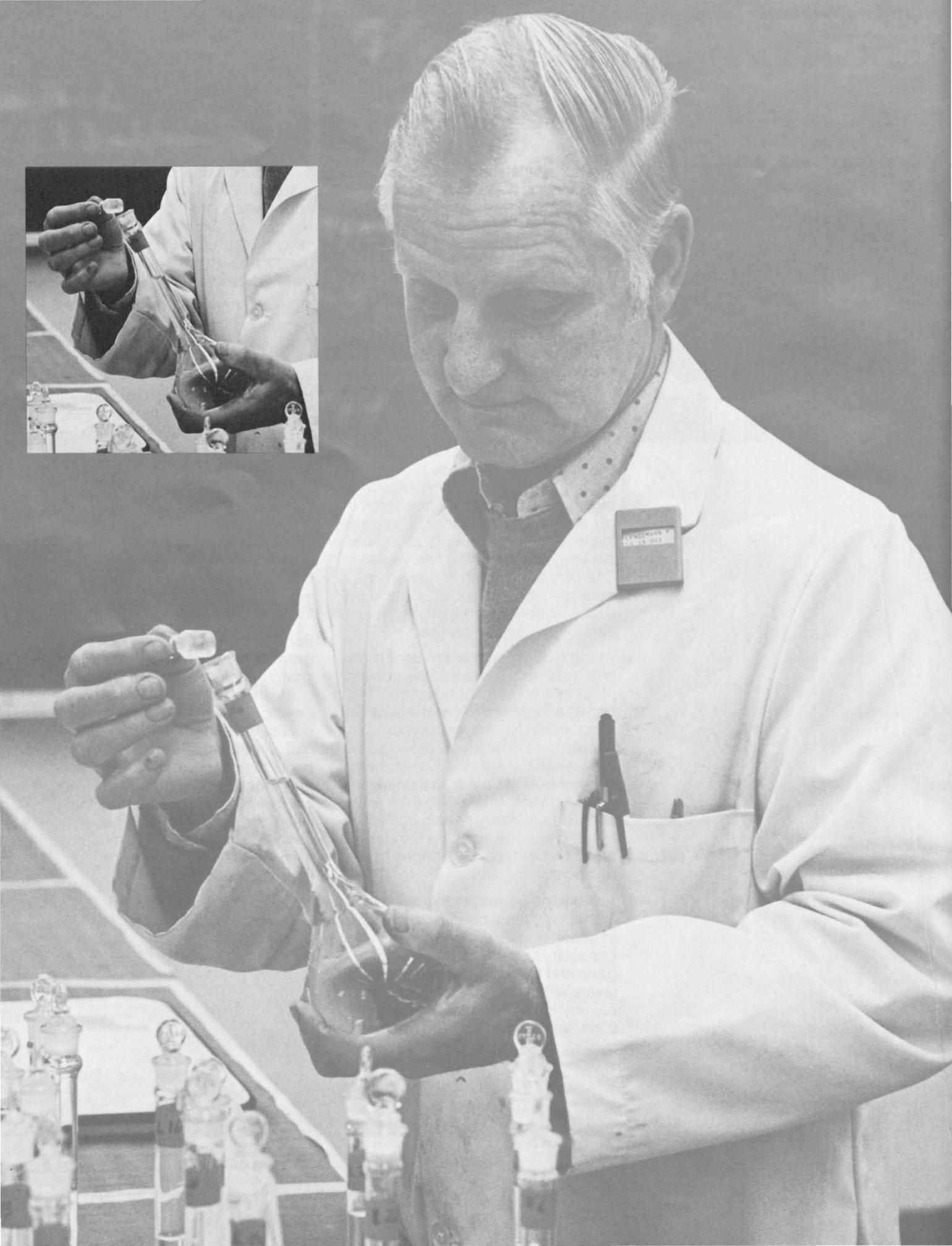
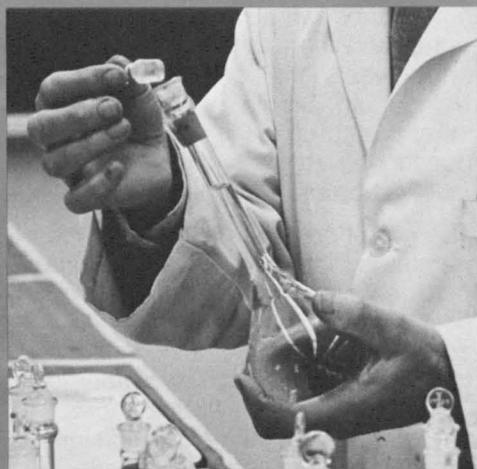
At the root of much of the confusion and the disagreement is the question of rights—human rights, animal rights, and protection-of-the-environment rights. No longer are most people sure of where to draw the lines when the rights of two or more segments of the biological universe are in conflict. Those who think they know do not easily remain comfortable with their decisions in the face of formidable challenges from myriad directions.

Astounding increases in medical technology have been a major factor in generating the dilemmas. With the capability to transplant human organs and to sustain life at various levels with the aid of complex machinery has come a flood of questions concerning the who, when, and

how of those who will benefit from the potential. When, to what extent, and under what conditions some human beings can, should, or must deprive other creatures of life or comfort are questions with which all of society must grapple.

The rise of consumerism with its twin demands for speed and safety in the production of drugs and other products related to health has exerted added pressures on those who seek to resolve the issues. The clamor for more and better answers to more and tougher questions in medicine is unrelenting. The search for methods—for ways to meet the enormous costs, for processes by which the highly specialized capabilities of one group of scientists can be joined to those of another specialty, for safeguards against the dire events that could result from human frailty or evil—threatens at times to transcend the search for knowledge.

Perhaps one of the most positive outgrowths of the entire imbroglio is the sharp increase in human awareness of the immutable interlock not only among the human and animal species of the earth but among all animal, vegetable, and mineral components of the known universe. People may indeed be “in command,” with the awesome responsibilities that position carries, but they do not—and cannot—live alone or too much apart from their fellow travelers through time and space.





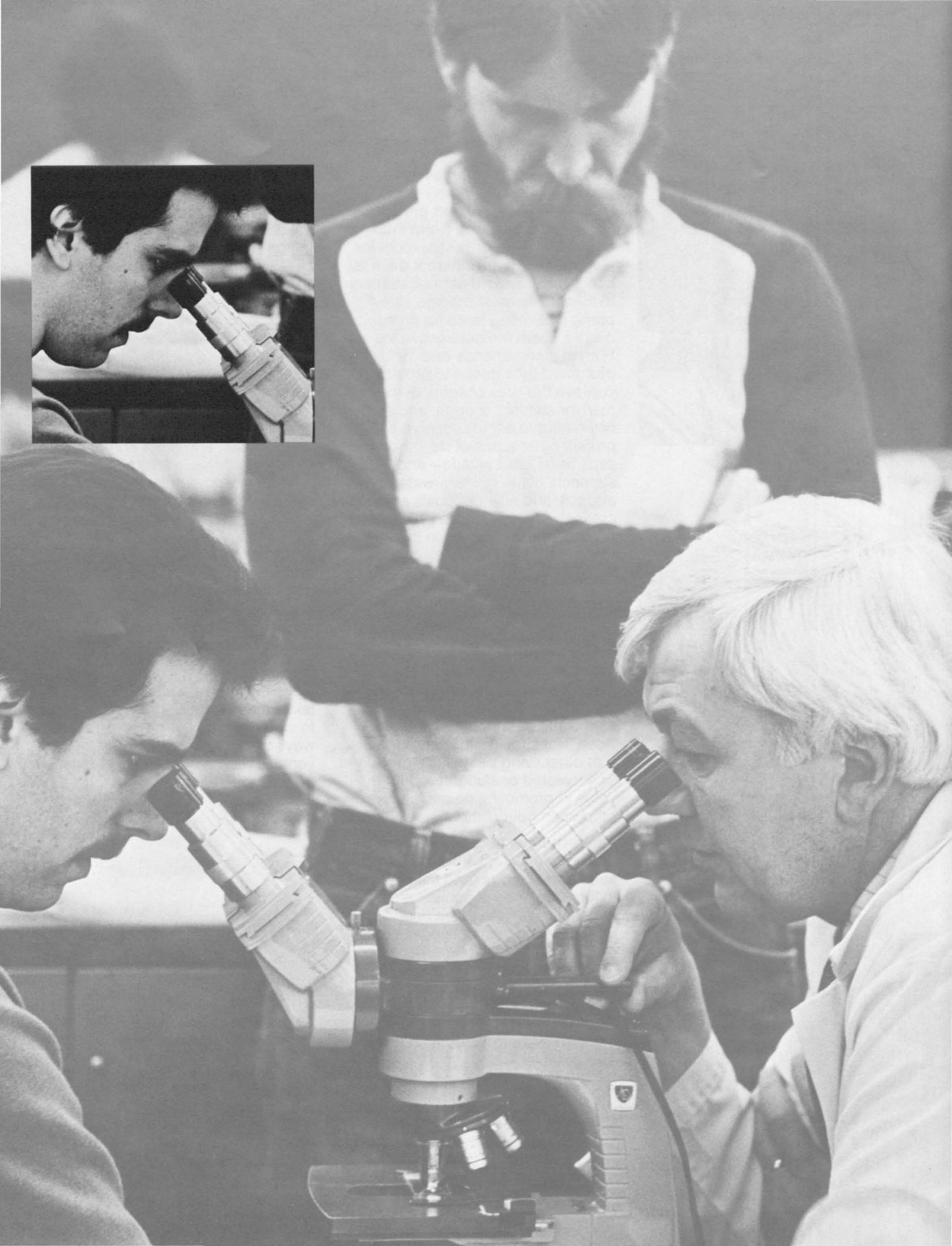
Although endless opinions are offered on its origin or merits, the fact that human beings exert greater control over the temporal world than any other species affords little room for dispute. Given the inherent drive for survival, it follows that the betterment of human life must emerge as a prime motivating force for human decisions. Even the destructive tools born of human hands and minds are prompted by a desire to protect or improve the lives of some of the human inhabitants of earth, and even when people act to preserve and protect other forms of life—the forests, fields, and wildlife—and other elements of the planet—water, minerals, soil, and air—the goals are to increase in some way the potential for human survival and joy in this or future generations.

Certainly then it can surprise no one that millions of animals are grown for the express purpose of providing food for people, that billions of tons of plant materials are produced for the same reason, and that uncounted numbers of wild creatures are harvested from the waters and the forests of the earth for the same purpose. Nor should it then be surprising that other living beings are produced or harvested or slaughtered for their value in promoting health in ways other than nourishment.

The resources and methods employed in making wholesome, nutritious bacon, eggs, and milk available to large portions of society are not very different from those used to produce insecticides, antiseptics, and medicines for treating human illness or to develop ways to transplant organs, replace hip joints, and treat cancer. Biomedical research is the common denominator linking this complex mélange of human goals and achievements.

All medicine—veterinary and human—springs from research that, at some stage, depends on the observation and manipulation of living things. Viruses and bacteria are, after all, alive. Many human lives are devoted to finding ways to destroy some of those that cause disease, so that other creatures can survive. By discovering ways to destroy parasites in animals as well as people, scientists have made it possible for livestock to live longer and better—and thus help feed the world—and have also made it possible for dogs, cats, horses, and other companion animals to thrive, adding their measure of joy and comfort to human lives. Indeed, the production of an adequate crop of grains and cereals for human or animal consumption depends on the destruction of insects and rodents. All along the line, birth and death among all the forms of life are controlled to a greater or lesser extent by people, and the goals usually relate to human needs and wants.

Nevertheless, no one at the college takes these issues lightly. The need to study, to learn, to devise practical ways to diagnose, control, and prevent disease is continually balanced against the costs, tangible and intangible.





The conduct of productive research in any field depends on a complex array of resources that can be grouped into five major categories: funds, personnel, facilities, materials, and a conducive overall atmosphere or environment. Most of these, in turn, consist of a variety of components.

While knowledgeable and experienced faculty members make up the primary research personnel at an academic institution, the projects they design and direct depend heavily on the skills and efforts contributed by graduate students and technicians. Appropriate facilities must include not only space, often specifically designed, but a vast range of equipment from test tubes and surgical instruments to electron microscopes and computers. In the category of materials, the demands of biomedical research outstrip those of other arenas, for living creatures, and the wherewithal to maintain them, are essential components, along with thousands of items of a chemical, mineral, and plant nature.

The final category, while the most elusive of definition, may well be the fulcrum on which the other components stand or fall. Interaction with colleagues; encouragement and support from them, from the college and University administration, and from alumni; the prestige and reputation of the institution itself; and broad public awareness and approval are all elements that create a climate in which research can flourish.

Although all five components are required in the development and maintenance of a vigorous research program, it is perhaps interesting to note that the last four are also the requisites on which the acquisition of funds depends. In the final analysis an institution that can demonstrate it has a superior capability to pursue research is in a good position to attract the funds needed to do so.

### Volume

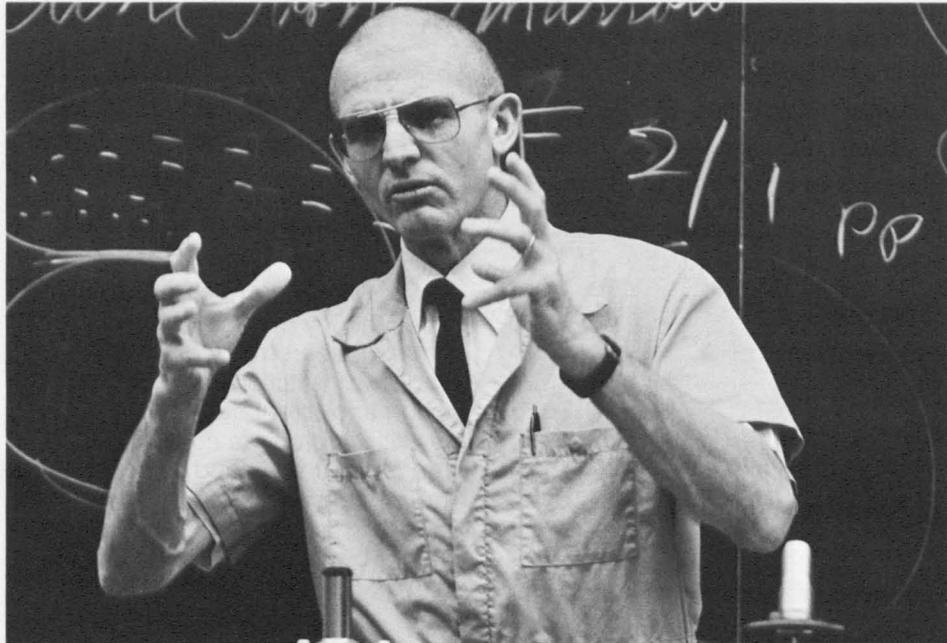
Growth in the college research program is one of the most remarkable features of a program characterized by outstanding lineaments. Total research funding from sources outside the college for the year just past—almost \$9.5 million—was nearly twice that of five years ago and almost triple the under \$3.5 million generated a brief seven years ago. Although the inflated cost of maintaining a consistent level of activity absorbed a portion of the increased income, the program also has expanded steadily during those years.

Perhaps no one familiar with the college's research potential is surprised by the fact that it contends with only one or two other veterinary colleges in the nation for top place in terms of dollars received for research in animal diseases. Although much of this money comes from New York State, a goodly share is in the form of grants from federal agencies.

There may be less awareness of the college's vast program in human health-related research. Again, however, in comparison with other institutions capable of pursuing such investigations and, therefore, of competing for funds from the same pool, the college has achieved a position of high rank. During the past year it was in the top 7 percent of all institutions in the nation in terms of the volume of research dollars received from the United States Department of Health and Human Services. It outranked all colleges of optometry and nursing; all but one out of seventy-two colleges of pharmacy; all but one veterinary college and one state health department; all but four out of seventy-two colleges of public health; all but five out of fifty-nine colleges of dentistry; and more than one-quarter of the colleges of human medicine.



Several factors have made such notable growth possible even during a period when government funds have been relentlessly cut. Not the least of this is the prestige of the faculty. Other personnel, including those involved in research administration, those responsible for the physical plant, the large group of individuals who oversee the care and handling of laboratory animals, support technicians, library staff, graduate students, and the professional-degree candidates, all contribute to the college's outstanding capability to conduct productive research. Add to this the world-renowned library resources, continually expanded and updated facilities, and the pride and dedication based on an enviable tradition of excellence, and the reasons for success in winning outside support become more apparent.

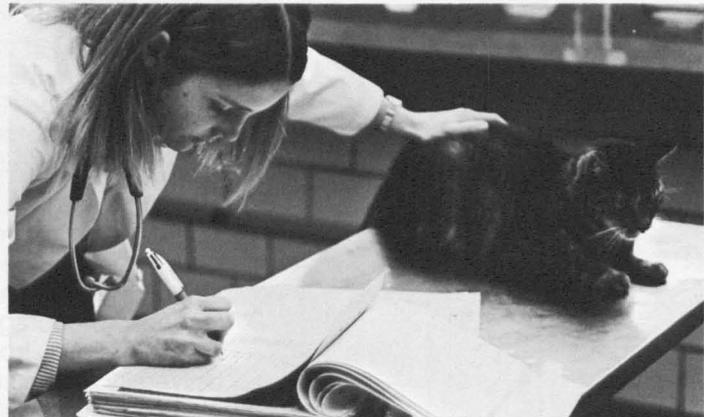


### **New Approaches to Support**

While a premier position in the tightening competition for government and foundation funds has been maintained through prodigious effort, it appears this may no longer be adequate to ensure sufficient support for continued excellence. A broader financial base is required if the college is to sustain its outstanding research program.

Within the last decade some new methods for funding and for coupling diverse skills have emerged. In the private sector million-dollar corporations have been formed on the grounds that the time is right and the future bright for genetic engineering. This, one of the modern world's newest technologies, is aimed at making practical use of the skills of those chemists and biologists who have learned how to manipulate genes to alter biological development through adding, removing, and splicing components of the mechanisms that control the inherited characteristics of cells.

Although the potential for applying these capabilities in negative direc-



tions may excite the imaginations of fiction writers and doomsayers, the fact is that the possibilities for positive applications in such vital areas of human concern as medicine and food production are at least as abundant and auspicious. Production of human and animal interferons, vaccines, high-efficiency fertilizers, growth hormones, and a host of other products that can profoundly enhance disease control or markedly increase harvestable animal and vegetable foodstuffs are some of the promises that genetic engineering is already beginning to fulfill.

The emergence of these corporations also presents an entirely new potential for collaborative research in which the expertise of biomedical researchers can be wedded to that of the genetic engineers and, supported by the corporations' financial resources, pave the way for giant steps in medical progress. Faculty and administrators at the College of Veterinary Medicine have been working with University officials and representatives of several genetic engineering corporations to develop arrangements for just such collaboration. One agreement has recently been signed and another is in



and institutes around the nation and the world—the basic patterns and procedures for collaborative work are already established. But, because the entrepreneurs who are funding the work must look ahead to profits to be realized from products developed, while college researchers must have their scholarly opportunities assured and the academic institutions

from another organism. That material would then be put into a living vector (bacteria, yeast, or cell culture) to produce a vaccine containing a high concentration of the desired component. Expectations would be that the new product would be superior in several significant ways to that which could be produced from the actual virus. Because only one tiny part of the virus, which has nothing to do with causing disease, is used, the level of safety would be at or above that of an inactivated-virus vaccine. But, since the new product would contain a greater antigenic mass, and in pure form, its efficacy should meet or exceed that of the existing vaccine.



Nevertheless, the only way to determine the actual response of animals vaccinated with the product would be to run tests in the natural host to demonstrate and measure the biological activity that ensues, so the next step in such a scenario would be for experimental quantities of the product to be sent back to the college researchers for that phase of the work. Just as the procedure, skills, and equipment to extract the key genetic component from the virus and insert it into the plasmid are frequently beyond the resources of the college researchers, so are the skills, procedure, and materials needed to do the testing outside the expertise of the genetic engineers. Awareness on the part of both groups that a union of the two sets of resources constitutes a formidable mechanism for achieving desired results has prompted the development of arrangements for collaborative efforts.



process. Both will provide the needed guidelines whereby college faculty members will handle certain aspects of a defined research project and the genetic engineers will deal with other elements of the problem, the combined effort leading to a product aimed at solving a specific veterinary medical problem.

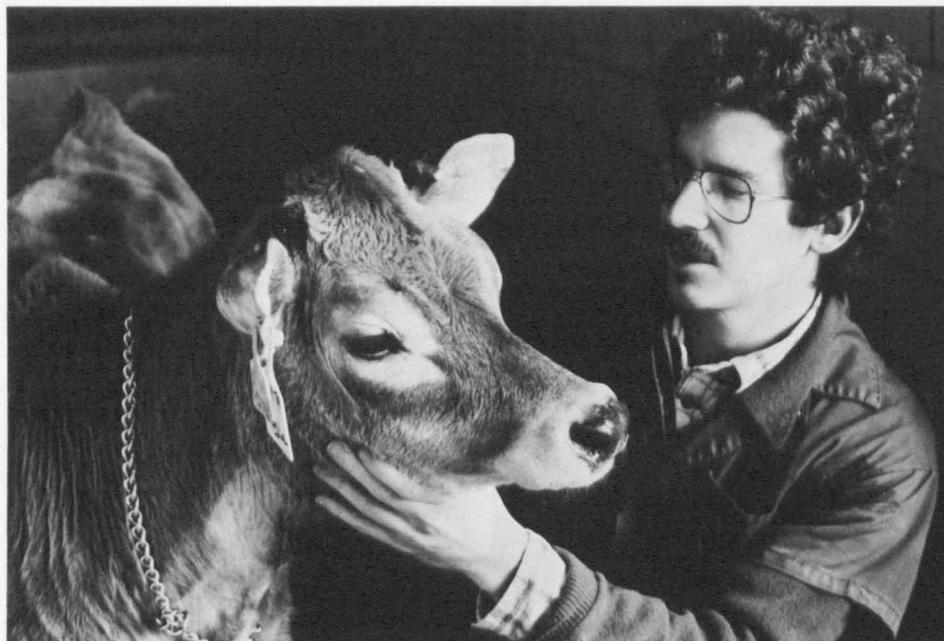
Since the scientific staffs of the genetic engineering companies are composed almost exclusively of former members of the academic world—protein chemists, molecular biologists, and nucleic acid chemists drawn from colleges, universities,

have need of yet another set of safeguards, the contracts are necessarily complex.

One example of the kind of work that appears eminently suited to this sort of combined attack is the production of vaccines. For purposes of illustration, let it be assumed that virologists at the college have identified a virus that causes a serious disease. They would also have determined which protein in the organism is responsible for activating the immune response in the host animal. Perhaps, however, they have not yet pinpointed precisely what part of the nucleic acid of that virus carries the genetic code that causes the immunity-stimulating protein to develop.

At this point the genetic engineers would take over, identifying and removing that particular genetic element from the virus and inserting it into an innocuous plasmid derived

In a move designed to foster similar collaboration involving scientists from several colleges and from major corporations, Cornell University has established the Biotechnology Institute. The College of Veterinary Medicine is one of the University academic units currently designated to participate in the newly established consortium, whereby University faculty members will work with scientists from the



tain disease of a specific animal parallels its counterpart in people in such a way that, while the primary aim is to find answers to the human problem, the work can be done with animals. Hepatitis, epilepsy, diabetes, and Dejerine-Sottas disease in children are some of the topics of research at the college in which woodchucks, rats, sheep, and dogs, respectively, are serving as models. Efforts to learn more about a congenital and hereditary skeletal disease in cattle have revealed that it may be a model for human osteogenesis imperfecta, and congenital stationary night blindness, a human ailment, appears to be capable of study via an eye disease of Tibetan terriers, in which all the classic symptoms of the human disease are shown.

sponsoring corporations. Research efforts will be aimed at manipulating genes in plants and animals in order to increase food production and quality, energy production, and economic growth in the state's agriculture, food, chemical, and pharmaceutical industries.

### Dimensions

About one-fourth of the outside support for research at the college is in the form of grants and contracts with the United States Department of Health and Human Services. Because receipt of such awards is dependent not only on the intrinsic merit of a proposed study and the recipient's potential for success but also on the relevance of the research to human health, it follows that at least that proportion of college research has bearing on human-health problems. The proportion is, in fact, considerably higher, partly because many studies designed to solve specific animal-health problems have sometimes predictable, sometimes surprising, ramifications beyond the original goal.

Dozens of investigations at the college, focused on one or more animal species, are designed to produce basic information applicable to other animals and to human beings. Among these are studies on various aspects of immunology, including genetic factors in immunity, which have relevance to organ transplants as well as prevention and control of infectious diseases.

Research in comparative anatomy and gastroenterology, metabolism, labor and parturition in mammals, and bacterial resistance to drugs will provide the needed foundations for ensuing projects at the college and elsewhere, many of which will be directed to improving human medical care. Current college efforts in research methodology, procedure, and materials—electron microscopy techniques, development of monoclonal antibodies in the recently established cell hybridization facility at the Baker Institute, and the design and construction of a unique meter for measuring blood flow—are basic contributions to all biomedical research.

Much progress has been made in solving human-health problems via the model approach, in which a cer-



The current set of investigations at the college that has grown out of two decades of Marek's disease (MD) research is a classic example of the interlock of all biomedical study. Vaccines, based largely on work done at the college, have served for many years to protect both producers and consumers from the economic ravages the disease could wreak on the poultry and egg industry.

Continuing investigations revealed that MD is a neoplastic disease (a



cancer) that is caused by a virus and that it can be prevented by a vaccine—results that are even more pertinent to basic biomedical research. The further recognition that the causative organism is a herpesvirus, that herpesviruses have been implicated in several kinds of human cancer, and that MD, therefore, serves as a model for the study of oncogenic herpesviruses in general has far-reaching significance. The discovery that infections with MD herpesvirus

induce atherosclerosis in chickens even in the absence of high dietary cholesterol is another outgrowth of MD research, one that holds great promise for understanding and controlling human atherosclerosis.

The importance of the dairy industry to New York State's economic health and the vital role of dairy products in the nutrition of all residents make cattle health of paramount importance to researchers at the college. The several dozen studies are predictably aimed primarily at the arenas of major concern: prevention, cure, or control of ailments that threaten production directly—such as mastitis and reproductive failure—or that reduce production and increase costs by debilitating or destroying some of the cattle population.

The approach to the control of mastitis includes work on a variety of vaccines against the different causative organisms, improved diagnostic procedures for early-stage detection, and better therapeutic measures for treating cases that occur. Research into the genetic factors that relate to the development of immunity has potential for the fight against other infectious diseases—respiratory, gas-

trointestinal, and reproductive—as well as mastitis.

Significant strides in improved reproductive procedures have resulted from many years of in-depth studies of the basic reproductive biology of cattle, a subject that continues to command the attention of several college researchers. Bovine nutritional needs, metabolic disorders, and health-management procedures are other topics of study. Results of much of this work also have relevance for veal and beef-cattle production, as do several investigations directed primarily to those industries. Collaboration with faculty members in other colleges and units at the University with expertise and interests that relate to cattle is facilitated by the Bovine Research Center at Cornell. The center also provides a means for the exchange of ideas with dairy and beef-cattle organizations concerning research needs.

Increased quality and quantity of food production is also the motivation behind much of the research dealing with ailments of domestic livestock other than cattle and with aquatic species. Because it is not economically feasible to diagnose or treat individual chickens, ducks, or turkeys, the "flock" approach to the control of disease, depending heavily on vaccines and other preventive measures, has long been the standard. For the same reason, developing programs to study diseases of fish and shellfish are being designed in a similar manner.

Broader public awareness of the value of companion animals to human mental and physical health only serves to reinforce Cornell's longstanding commitment to the improvement of canine and feline health. At the James A. Baker Institute for Animal Health investigators continue to explore such diverse canine afflictions as parvovirus infection, hip dysplasia, neurological diseases, thyroid malfunctions, and reproductive disorders, along with developing better

diets and improved procedures for managing geriatric problems. Outstanding work in the prevention, diagnosis, and treatment of such feline ailments as leukemia, infectious peritonitis, respiratory diseases, the kitten mortality complex, and neurological disorders continues to emerge from research at the Cornell Feline Health Center.

In recent years new studies aimed at improved health care for pet birds and fish have been initiated. Much of the research aimed at controlling disease among laboratory animals, such as hamsters, gerbils, and guinea pigs, has been of benefit in the medical care of those species kept as companion animals.

Finding ways to safeguard the health of New York's equine population, which includes thousands of horses and ponies for individual recreation as well as those that make racing one of the state's major industries, constitutes the prime research interest of faculty in a dozen departments and units at the college. Several studies deal with the numerous physical and behavioral factors that affect the entire reproductive cycle from estrus and semen production through conception, pregnancy, delivery, and neonatal stages.

A broad program of studies, incorporated under the heading of equine sports medicine, is directed toward increasing understanding of exercise physiology; the causes, prevention, and treatment of lameness and other locomotive malfunctions; and respiratory and cardiac function. The development of vaccines and therapies for a variety of equine infectious diseases, such as influenza and strangles, as well as more basic studies of genetic factors that influence immunity, are other topics of current equine research.

Diet—the components and balance of nutrients needed for optimum growth and vigor, and the potential hazards of incorrect feeding regimes—and malfunctions of the



digestive system, such as colic, are topics of several equine investigations. Other projects are aimed at better control of parasites, prevention and treatment of skin tumors, eye problems, improved surgical procedures, and the toxic effects of drugs and poisons.

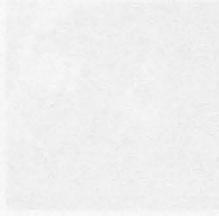
### Animals

One element that has given the college an edge over some of its competitors in grant applications and has proven basic to much research success is the scope and quality of its laboratory animals and related facilities and services. The colonies of specific-pathogen-free (SPF) dogs, cats, and chickens that have been maintained for many generations have had a profound positive impact on research achievements at the Baker Institute, in the Department of Avian and Aquatic Animal Medicine, in the Department of Microbiology, and in the Feline Health Center and continue to play important roles. More recently the erection of a facility for rearing and maintaining SPF cattle as part of the Bovine Research Center and plans to establish stocks of defined aquatic animals at the Laboratory for Marine Animal Health



vastly increase the potential for research with those species.

Carefully controlled and monitored stocks of the more common laboratory animals, such as mice, rats, hamsters, gerbils, and guinea pigs, have long been a college feature, and collections of less-usual species have also been developed. An extensive colony of woodchucks has been housed and nurtured over the past few years as part of an intensive investigation in viral hepatitis.

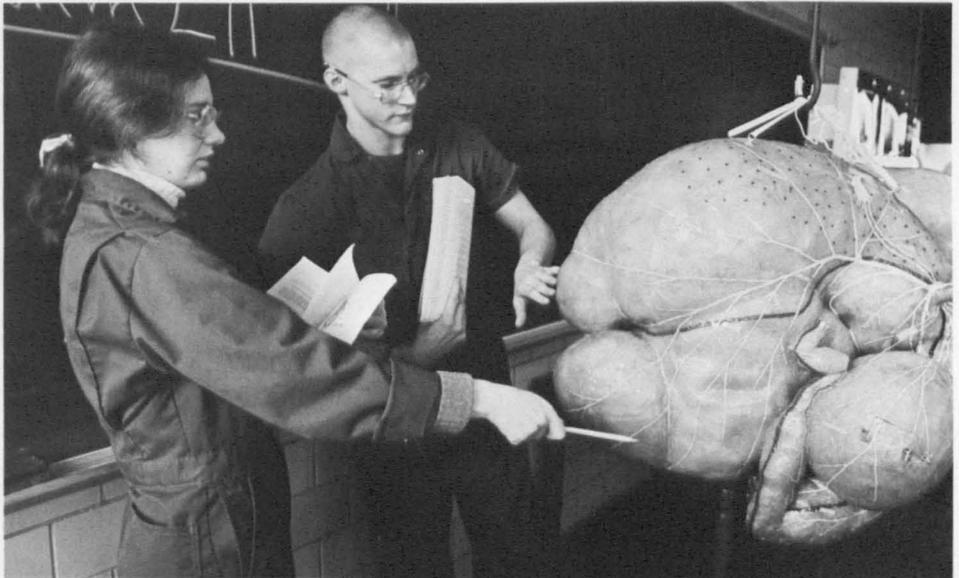


Animals are involved in about three-fourths of the more than 170 investigations under way at the college. These range from electric eels and other aquatic species to horses, cattle, sheep, goats, pigs, poultry, cats, and dogs, in addition to baboons, woodchucks, and the typical laboratory species such as mice, rats, and rabbits. A variety of animals play a part in research on the human-companion animal bond and on reproduction in domestic ruminants.

Cattle are the subjects of the most studies—44 of the approximately 130 projects involving animals—while equine species figure in some 25 and dogs in 21. Poultry and rats are the subjects of a dozen studies each. In general, whenever the less complex or valuable animals such as rats, mice, chickens, or invertebrates can meet the research needs, they are substituted. Frequently, preliminary work—on development of a vaccine, for example—is done with tissue or cell cultures or other laboratory reagents until the later stages, when testing with the actual species to be protected is necessary to establish dosage, measure efficacy, and demonstrate safety.

Inevitably the question arises whether researchers, in their zeal to unravel biological mysteries or find practical solutions to pressing health problems, might develop a too-casual approach toward the experimental use of animals. The response must be that the safeguards against such a possibility are both numerous and multifaceted. Most basic of all, perhaps, is the fact that the researchers are humane people. Almost all researchers at the college are veterinarians, as are many of those who work in the research departments of medical schools and other institutions. Others have M.D. degrees, and some have both.

Although such training does not guarantee higher ethical standards in its recipients, it must be recognized that some out-of-the-ordinary motiva-



tions have been required to enable those individuals to pursue and complete such rigorous and demanding training periods, and it would seem to be a fair assumption that for most that motivation must have included a profound desire to make a positive contribution to the well-being of living creatures.

Nevertheless, ethical and motivational theories do not provide sufficient practical assurance to society

as a whole—particularly since there is the clear possibility of ethics and motives colliding when confronted with the need to impose suffering or loss of life here in order to preserve or improve life there. For this reason, detailed guidelines and safeguards have been laid down by the federal government, New York State, the profession's own association, Cornell University, and the College of Veterinary Medicine itself to ensure the humane care and handling of animals involved in any way in research. Thick handbooks spell out specifications for housing, sanitation, food, water, bedding, records, disease control and treatment, and a multitude of other details.

These regulations must be applied not only to the thousands of animals involved in research at the veterinary college but also to the enormous number and remarkable diversity of species kept in other academic units of the University. As many as ten thousand fish, large numbers of domestic livestock, and such predictable laboratory creatures as mice, hamsters, and rabbits, plus many more unusual species, including vampire bats, miniature kangaroos, and South American tree frogs, are subjects of study in Ithaca. In



New York City another eighty thousand mice at the Sloan-Kettering Institute and about twenty thousand chickens, mice, livestock, and other creatures at the Medical College appear in an average daily census.

Dr. Fred W. Quimby, with a dual appointment at the College of Veterinary Medicine and the Medical College, heads the Cornell Center for Research Animal Resources and is charged with providing appropriate care in all its many aspects to this vast community of beings. He heads the staff of veterinarians, technicians, and others who make sure the University is in compliance with all applicable regulations and guidelines.

Among the most critical regulations are those established by the National Institutes of Health (NIH). Failure to comply with every detail of NIH requirements would jeopardize the millions of dollars in research funds received from that agency annually and would be very poor business, apart from the moral and ethical questions. Since 1977, however, when the Cornell College of Veterinary Medicine became the third veterinary college to receive accreditation by the American Association for Accreditation of Laboratory Animal Care (AAALAC), site visits by NIH representatives have been unnecessary. The extensive records and routine visits by AAALAC representatives that are required to maintain accreditation by that association are accepted by NIH as assurance that their guidelines are being met.

Maintaining the huge numbers of research animals and meeting the high standards that have been adopted is, however, costly. While it is impossible to calculate precisely, the best estimate is that providing for the optimal care and well-being of all laboratory animals in all the University's units carries a price tag of around \$3.3 million annually. The dedication of human effort and other resources represented by that figure should constitute adequate assurance to all



concerned persons that nothing has been spared in the effort to reduce to its minimum level the exploitation of animals through research. It is an assurance cherished by these investigators who cope with the personal traumas, however large or small, born of causing some suffering to some creatures in their pursuit of that larger goal—helping to save or improve the lives of untold numbers of others.

### Personnel

The national and worldwide preeminence of a large proportion of senior faculty members at the veterinary college; the addition in recent years of others who, though new to Cornell, are recognized world authorities in their fields; and the impressive array of skills and knowledge represented by the aggregate as well as by the individuals constitute a remarkable potential for research achievement and present a formidable challenge to competitors for funds. The newest faculty unit—those selected to develop the program of the fledgling Department of Pharmacology—has been responsible for the flow of almost three-quarters of a million dollars in research funds into the college in the less than two years since the department was established.



The faculty is aided substantially in maintaining the requisite barrage on the portals of funding agencies by the college's assistant dean for research administration and his staff. Ultimately all grants and contracts come under the supervision of the University's central sponsored research office, but, for faculty members in many of Cornell's academic units, help in the early stages of the search for funds is scarce.

In addition, funding cutbacks in recent years have made the procedure not only more competitive but more burdened with paperwork and red tape. Whereas, less than a decade ago, one or two proposals well constructed and judiciously targeted might have yielded needed support, a dozen or more proposals may now be required, each organized specifically to appeal to one of the holders of purse strings. The distended state

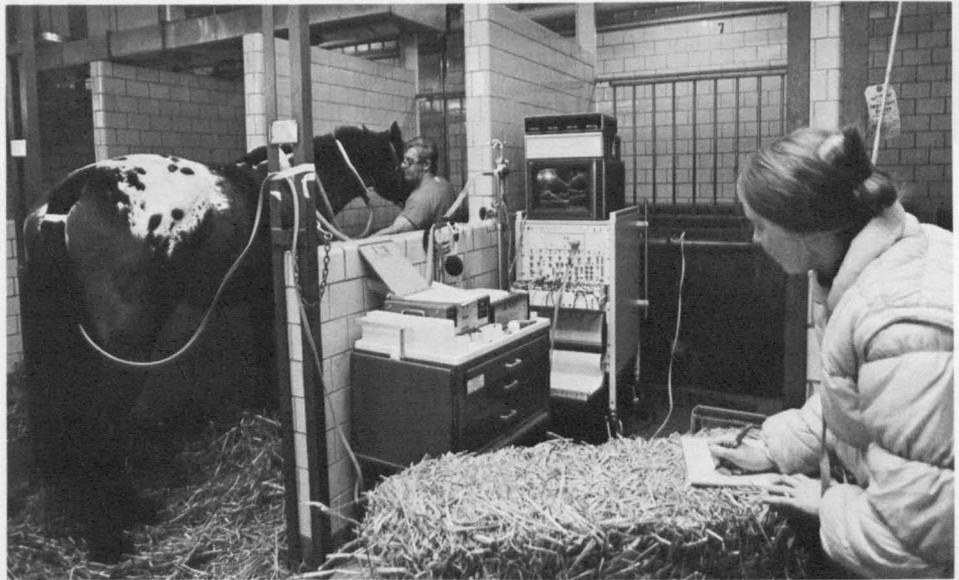


of the art of grantsmanship is manifested by the fact that paperwork done by the college's research administration staff in pursuit of grants and contracts has more than tripled in the past two years.

Because so much of the biomedical research conducted in this country is done under the supervision of individuals with advanced degrees in veterinary medicine and involves the work of others who are themselves pursuing advanced degrees in the profession, the quantity and quality of current graduate training is of paramount importance in maintaining a vigorous research program. The decline in the number of students who hold D.V.M. degrees from veterinary colleges in this country and who enter graduate school is cause for considerable concern on that score. Six years ago an increase in stipends yielded an upsurge in applications to the graduate Field of Veterinary Medicine at Cornell, but that response was brief and has been followed by a steady drop-off.

A promising step toward reversal of this trend is a training grant received in June 1983 by the Department of Pathology to provide a summer research experience for thirty-five professional-degree students over a five-year period. The award, from the National Institute of Allergy and Infectious Diseases, is designed to stimulate student interest in biomedical research careers. However, the cost of preveterinary and professional-degree training is such that few individuals, no matter how powerfully motivated, can sustain the additional expenses and loss of income required to continue their studies.

Response to the mounting crescendo of questions relevant to disease control and health maintenance must include plans for increasing the pool of well-trained research personnel along with the development of new methods and new sources of funding.



### Support Systems

Conduct of the College of Veterinary Medicine's vast research program, in tandem with its instructional and public service missions, is possible in no small measure because of its extensive and efficient support systems.

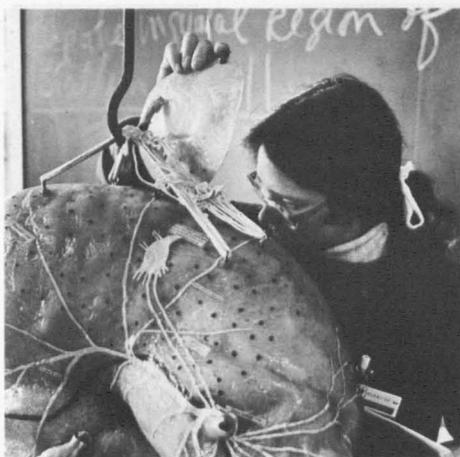
The very walls that encompass this complex array of activities seem to shrink visibly at times. Additions and renovations to help meet expanding and changing needs during the past year included completion of the bovine and canine specific-pathogen-free facilities on Snyder Hill; renovation of a Warren Road building for the Equine Drug Testing and Research Program; placement of two modular office units east of Schurman Hall, providing eighteen hundred square feet; remodeled laboratories for pharmacology research; modifications to the new animal holding wing at Baker Institute to improve humidity and temperature maintenance; and fencing and grading of animal exercise areas.

Additional space for library collections and services remains a pressing need. Development of audiovisual materials continues—twenty-two new videotapes were produced by

faculty members and staff of Biomedical Communications in 1982–83. Use of the Autotutorial Center increased by 15 percent during the year, with a total of 4,462 separate viewings of slides, tapes, and closed-circuit television recorded. Space to accommodate this activity is severely limited, with seating for only seventeen individuals at one time. Other library services and use of them expanded in spite of space limitations. A 47-percent increase was seen in computer-assisted literature searches for purposes ranging from development of research grant proposals to treatment of hospital patients.

Researchers, along with all faculty and staff as well as students, are making increased use of the college's expanding computer facilities. The installation of terminals in the library and other locations, the addition of word-processing programs and hardware, and the development of computerized billing and accounts receivable for the Teaching Hospital are some of the major innovations during the past year.





A new publication to convey health information on horses, dogs, cats, and other pet animals to owners and other interested persons was begun during the past year. Entitled *Animal Health Newsletter*, the eight-page piece includes research results from the New York State College of Veterinary Medicine and elsewhere. It is published monthly by the Animal Care Newsletter Associates of New York City and is mailed nationwide on a subscription basis. Dr. Charles G. Rickard, associate dean at the College of Veterinary Medicine, serves as editor; Dean Melby and thirteen college faculty members make up the rest of the editorial advisory board.

Other publications designed to keep friends of the college aware of news and research are published by staff of the Baker Institute, the Feline Health Center, extension service, and college public information personnel. In addition to publications, close ties and an exchange of ideas are maintained with alumni and other interested persons through letters, personal visits, and meetings on and off campus.

A record number of members paid dues to the college alumni association during 1982-83, and eight hundred alumni donors contributed \$276,548 to the annual Veterinary College Fund. For the fourth consecutive year nonalumni friends' gifts increased, reaching a total of \$544,197 for 1982-83.

In December 1982 the college was selected to be one of four centers in the nation for a new program designed to serve the pharmaceutical needs of minor food-animal species. Dr. John Babish, assistant professor in the Department of Preventive Medicine, was named Northeast regional animal drug coordinator to head the program. He will coordinate research at the college to provide data needed by the FDA to register

drugs for use in such species as rabbits, ducks, pheasants, goats, and sheep. Dr. Babish also will direct research aimed at developing a biochemical basis for predicting effective drug regimes for a variety of species, which it is hoped may eliminate the need for experiments with large numbers of animals in order to achieve FDA registration of the drugs.

During the first full year of its operation, the Laboratory for Marine Animal Health (LMAH) at Woods Hole, Massachusetts, directed by Dr. Louis Liebovitz, of the college's Department of Avian and Aquatic Animal Medicine, processed nearly eleven hundred accessions. More than twice that number of animals and specimens were examined for diagnostic purposes. About 20 percent of these were submitted by the Marine Biology Laboratory, where the LMAH is situated, and other marine institutions in the community, with the remaining 80 percent coming from individual marine-animal researchers.

Staff and sponsors of the LMAH, who recognize the negative influence on marine-animal research posed by the lack of healthy laboratory animals and by the current inadequacy of standards for defining and recognizing healthy specimens, view this use of LMAH expertise as a significant forward step. While development of disease-free, standardized, cultured marine laboratory animals is the ultimate goal, the LMAH is helping researchers develop transitional corrective measures to recognize, prevent, and control disease in the stocks now available.

Eight professional-degree candidates at Cornell and eight from the Pennsylvania School of Veterinary Medicine, along with sixteen from other veterinary medical colleges,

completed the 1983 session of Aquavet at Woods Hole. Eight individuals, recruited primarily from graduates of the six previous Aquavet sessions, attended the newly established Aquavet II, held concurrently and focused, in its first year, on the health and maintenance of confined fish populations. Several Aquavet students stayed at research laboratories in the Woods Hole community for two months of summer work.

Four members of the College of Veterinary Medicine, including Dean Edward C. Melby, Jr., and Associate Dean Charles G. Rickard, spent from one week to three months during 1982—83 at the King Faisal University in Saudi Arabia to lend their expertise to the administration and faculty of KFU as part of the Arabian university's broad development effort. Entitled the Jamiah Project, the plan involves United States educational institutions and corporations of which the prime four are Cornell, Harvard, Texas A & M, and Rice, each of which is to provide assistance in selected areas.

Dr. Fred W. Quimby, director of Cornell's Center for Research Animal Resources and a faculty member of the College of Veterinary Medicine, did a survey and analysis of the needs of KFU for laboratory animals, personnel, and facilities throughout its various colleges. Eugene W. Slater, manager of medical records at Cornell's College of Veterinary Medicine, designed a computerized medical records system for the veterinary teaching hospital at KFU. Dr. Melby and Dr. Rickard served as consultants on organizational and administrative procedures. Dr. John N. Telford, of Cornell's Division of Biological Sciences, accepted a long-term assignment to aid in the development of procedures and practices for use of the electron microscope in teaching and research.



## Faculty and Staff Changes

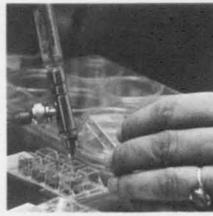
### New Appointments

Ahmed Sayed Ahmed, *Visiting Fellow*  
 Steven P. Arnoczky, *Adjunct Associate Professor*  
 Gary J. Bennett, *Field Veterinarian*  
 Juanell N. Boyd, *Research Associate*  
 John S. Chandler, *Postdoctoral Associate*  
 Gerald Culhane, *Medical Illustrator*  
 Stephen G. Dill, *Instructor*  
 Nathan Joel Edwards, *Adjunct Associate Professor*  
 Adel A. El-Badry, *Visiting Fellow*  
 Mohammed O. Farah, *Visiting Fellow*  
 Clare M. Fewtrell, *Assistant Professor*  
 Tracy W. French, *Assistant Professor*  
 Hanania Gloobe, *Visiting Professor*  
 Charles L. Guard, *Assistant Professor*  
 Michael A. Hannwacker, *Instructor*  
 John L. Hardy, *Executive Staff Assistant*  
 Jin-Shan Jin, *Visiting Instructor*  
 Matthew J. Krsulich, *Director of Laboratory Operations*  
 Jean E. Maguire, *Field Veterinarian*  
 Adele L. Martel, *Postdoctoral Fellow*  
 James F. McCabe, *Director of Financial Systems*

Suzanne B. Neuenschwander, *Postdoctoral Fellow*  
 Hai T. Nguyen, *Adjunct Assistant Professor*  
 Janet M. Scarlett Kranz, *Assistant Professor*  
 Hal F. Schulte III, *Field Veterinarian*  
 Sonjia M. Shelly, *Postdoctoral Fellow*  
 Mordechai Shemesh, *Visiting Associate Professor*  
 Mary Lou Tortorello, *Postdoctoral Associate*  
 Daniel Weinstock, *Postdoctoral Fellow*  
 John D. Welsh, *Research Associate*

### Promotions and Title Changes

David Abbott, *Instructor* (from Resident)  
 Sharon A. Center, *Assistant Professor* (from Instructor)



Alexander de Lahunta, *Professor of Anatomy and Chairman, Department of Clinical Sciences* (from Professor of Anatomy; Chairman, Department of Clinical Sciences; and Director, Teaching Hospital)

Amy C. Dietze, *Instructor* (from Resident)

Richard W. Diters, *Instructor* (from Resident)

James A. Flanders, *Instructor* (from Resident)

Susan L. Fubini, *Instructor* (from Resident)

Marion E. Georgi, *Director of Laboratory Operations* (from Visiting Fellow)

Richard P. Hackett, *Associate Professor* (from Assistant Professor)

William Hansel, *Professor* (from Professor and Chairman, Department of Physiology/Section of Physiology)

Kay A. Henderson, *Visiting Fellow* (from Postdoctoral Associate)

John D. Henion, *Associate Professor* (from Assistant Professor)

Katherine A. Houghton, *Associate Professor* (from Assistant Professor)

Robert W. Kirk, *Professor and Director, Teaching Hospital* (from Professor)

Louis Leibovitz, *Professor* (from Associate Professor)

George Lust, *Professor* (from Associate Professor)

Kerry L. Manzell, *Director of Laboratory Operations* (from Technician)

William C. Rebhun, *Associate Professor* (from Assistant Professor)

Gerald D. Ryan, *Senior Lecturer* (from Lecturer)

Mary C. Smith, *Associate Professor* (from Assistant Professor)

Jan M. Spitsbergen, *Postdoctoral Fellow* (from Veterinary Assistant)

Donna K. Walton, *Assistant Professor* (from Instructor)

Robert H. Wasserman, *Professor and Chairman, Department of Physiology/Section of Physiology* (from Professor)

Susanne K. Whitaker, *Librarian* (from Associate Librarian)

John Erby Wilkinson, *Postdoctoral Fellow* (from Intern)

Nancy I. Wurster, *Postdoctoral Fellow* (from Research Associate)

### Completed Terms

John Danius, *Visiting Fellow*  
Samuel Edelstein, *Visiting Associate Professor*

Michael A. Hannwacker, *Instructor*

Brigit R. Holm, *Visiting Fellow*

Susan A. Levine, *Instructor*

Armando Mateos, *Visiting Fellow*

Bintara Her Sasangra, *Visiting Fellow*

Robert J. Seiler, *Instructor*

Francois R. Sugnaux, *Postdoctoral Associate*

### Resignations

Brandford O. Brooks, *Research Associate*

James A. Brooks, *Administrative Manager*

Christine Eckers, *Postdoctoral Associate*

Edward L. Jarroll, Jr., *Senior Research Associate*

Norman A. LaFaunce, *Assistant Professor*

Douglas M. MacCoy, *Assistant Professor*

Thomas O. Manning, *Assistant Professor*

Gerard M. Meenan, *Director of Laboratory Operations*

Howard Moraff, *Senior Research Associate*

Joan P. Opdebeeck, *Assistant Professor*

Charlene C. Sherwood, *Assistant Librarian*

Donald F. Smith, *Assistant Professor*

Glen L. Spaulding, *Assistant Professor*

Claudia A. Sutton, *Research Associate*

Karl K. White, *Assistant Professor*

### Retirements

Helen A. Greisen, *Research Associate*

Wesley E. Linquist, *Supervising Veterinarian*

### Deaths

Joseph G. Ebel, *Director of Laboratory Operations*

Herbert L. Gilman, *Professor Emeritus*

**Table 1**  
**Continuing Education, 1982-83**

<i>Program</i>	<i>Participants</i>	<i>Hours</i>
Anesthesia and Supportive Care for the Veterinary Technician	39	20
Conference for Veterinarians, 75th Annual	630	27
Equine Reproduction Workshop	20	15
Farrier's Conference	82	10
Feline Health Seminar	30	20
Pathology Short Course, Olafson	65	40
Small Animal Endoscopy Short Course	24	10.5
Lendings, autotutorial programs: 55		

**Table 2**  
**Laboratory Animals Housed and Cared for by the Division of Laboratory Animal Services, 1982-83**

	<i>Daily Average</i>	<i>Annual Total</i>
Calves	10	59
Cats (SPF)	191	196
Cats (other)	54	135
Chicks	365	3,037
Dogs	254	342
Ferrets	3	9
Frogs	11	11
Goats	9	9
Guinea pigs	14	40
Hamsters	68	140
Mice	1,996	6,345
Opossums	1	1
Primates	6	14
Rabbits	127	300
Raccoons	1	1
Rats	157	1,389
Sheep	6	69
Squirrels	5	5
Woodchucks	247	346
<b>Total</b>	<b>3,525</b>	<b>12,448</b>

**Table 3**  
**Graduate Student Enrollment, Field of Veterinary Medicine, 1982-83**

Candidates for the Ph.D. degree	41
Candidates for the M.S. degree	16

**Table 4**  
**Degrees Awarded, 1982-83**

D.V.M. (with Distinction: 4)	80
M.S.	5
Ph.D.	6

**Table 5**  
**Predoctoral Student Enrollment, 1982-83**

Candidates for the D.V.M. degree	
Class of 1983	80
Class of 1984	81
Class of 1985	80
Class of 1986	78
<b>Total</b>	<b>319</b>
Cornell undergraduates taking courses in the college (full-time equivalents)	48

**Table 6**  
**Library Use, 1982-83**

On campus	
Reserve books (in-library use)	13,815
Books lent (home use)	23,159
Photocopy items provided (in lieu of loans)	10,461
Audiovisuals used	4,462
<b>Total on campus</b>	<b>51,897</b>
Interlibrary	
Books lent	80
Photocopy items provided	447
Books borrowed	91
Photocopy items received	752
<b>Total interlibrary</b>	<b>1,370</b>

**Table 7**  
**Clinical and Diagnostic Accessions, 1982**

	Horses	Cattle	Sheep & Goats	Swine	Dogs	Cats	Poultry	Others	Total
Medical and surgical	1,902	846	133	11	9,942	3,807		126	16,767
Ambulatory Clinic	1,900	36,200	850	980	3	2			39,935
Clinical pathology specimens	4,675	3,402	287	17	11,699	2,780		1,016	23,876*
Diagnostic Laboratory	15,992	656,639	4,162	1,157	16,290	6,180	210	1,646	702,276
Necropsies	382	763	182	80	708	293	13	598	3,019
Surgical pathology	485	380	53	22	6,279	1,188	59	151	8,617
Laboratory animal examinations					276	62		1,194	1,532†
Aquatic animal accessions								1,068	1,068
Poultry Disease Laboratories							6,935	1,814	8,749
Mastitis Control Program	5	241,485	88	4					241,582
Total	25,341	939,715	5,755	2,271	45,197	14,312	7,217	7,613	1,047,421

\*The Clinical Pathology Laboratory performed 35,604 tests on the 23,876 specimens.

†The Division of Laboratory Animal Services maintained 12,448 animals; the daily census averaged 3,525.

**Table 8**  
**Geographic Distribution of Accepted Applicants, Class of 1987**

Legal Residence	Number
New York	58
Connecticut	2
Maryland	4
Michigan	1
New Hampshire	2
New Jersey	7
Pennsylvania	2
Puerto Rico	2
Vermont	2

**Table 9**  
**Library Holdings, 1982-83**

Bound volumes	
At beginning of year	71,958
Acquisitions	1,180
Less withdrawals	84
Total bound volumes	73,054
Audiovisual items	18,344
Periodicals and annuals	1,030

**Table 10**  
**Qualifications of Accepted Applicants, Class of 1987**

	Number of Applicants	Percentage of Class
Amount of preveterinary preparation		
Fewer than four years of college	8	10.00
Four years of college	42	52.50
More than four years of college (graduate level)	30	37.50
Institution previously attended		
Cornell University	34	42.50
Other	46	57.50
Field of preparatory study		
Animal science (or related)	22	27.50
Biological sciences (or related)	37	46.25
Other	21	26.25

**Table 11**  
**Summary of Grants and Contracts Awarded, 1982–83**

<i>Recipient</i>	<i>For 1982–83</i>	<i>For Subsequent Years</i>	<i>Total</i>
Administration	\$ 406,550	\$ 151,552	\$ 588,102
Anatomy	\$ 43,745	\$ 0	\$ 43,745
Avian and Aquatic Animal Medicine			
Department Program	\$ 196,109	\$ 365,817	\$ 561,926
Poultry Disease Laboratories	<u>203,620</u>	<u>0</u>	<u>203,620</u>
Total Avian and Aquatic Animal Medicine	\$ 399,729	\$ 365,817	\$ 765,546
Clinical Sciences			
Department Program	\$1,018,002	\$ 783,785	\$ 1,801,787
Mastitis Control Program	<u>346,380</u>	<u>0</u>	<u>346,380</u>
Total Clinical Sciences	\$1,364,382	\$ 783,785	\$ 2,148,167
Diagnostic Laboratory			
Agriculture and Markets Contract	\$ 976,000	\$ 0	\$ 976,000
Equine Drug Testing and Research Program	2,804,971	0	2,804,971
Other	<u>35,000</u>	<u>0</u>	<u>35,000</u>
Total Diagnostic Laboratory	\$3,815,971	\$ 0	\$ 3,815,971
Microbiology			
Department Program	\$ 921,235	\$ 513,466	\$ 1,434,701
Baker Institute for Animal Health	<u>682,928</u>	<u>502,379</u>	<u>1,185,307</u>
Total Microbiology	\$1,604,163	\$1,015,845	\$ 2,620,008
Pathology	\$ 376,754	\$ 955,522	\$ 1,332,276
Pharmacology	\$ 306,634	\$ 567,605	\$ 874,239
Physiology	\$ 885,082	\$ 369,370	\$ 1,254,452
Preventive Medicine	<u>\$ 291,449</u>	<u>\$ 70,348</u>	<u>\$ 361,797</u>
Grand Total	\$9,494,459	\$4,279,844	\$13,774,303

**Table 12**  
**Interns and Residents, 1982–83**

Interns	12
Residents	18

**Table 13**  
**Admission Summary; Class of 1987**

<i>Area</i>	<i>Applicants</i>	<i>Interviewed</i>	<i>Accepted</i>
New York	292	123	58
Contract states	127	65	17
Other	<u>97</u>	<u>22</u>	<u>5</u>
Total	516	210	80

# Financial Statements

Tables 14 and 15 are summaries of the income and expenditures of the New York State College of Veterinary Medicine for the fiscal years July 1, 1981, through June 30, 1982, and July 1, 1982, through June 30, 1983. These figures do not include expenditures for indirect costs, estimated for 1982-83 at \$2,677,565 for general support services and \$4,019,076 for salary fringe benefits.

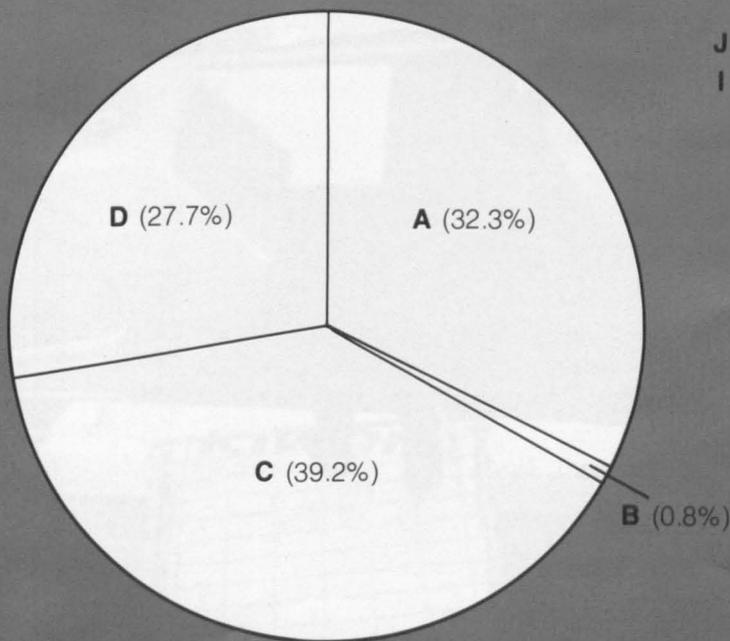
**Table 14**  
**Source of Funds**

	1982-83	1981-82
<b>A.</b> State appropriation	\$ 7,945,391	\$ 7,448,977
<b>B.</b> Federal appropriation	209,342	302,111
<b>C.</b> Grants and contracts	9,640,255	8,689,881
<b>D.</b> College income	6,814,910	6,406,841
Total	\$24,609,898	\$22,847,810

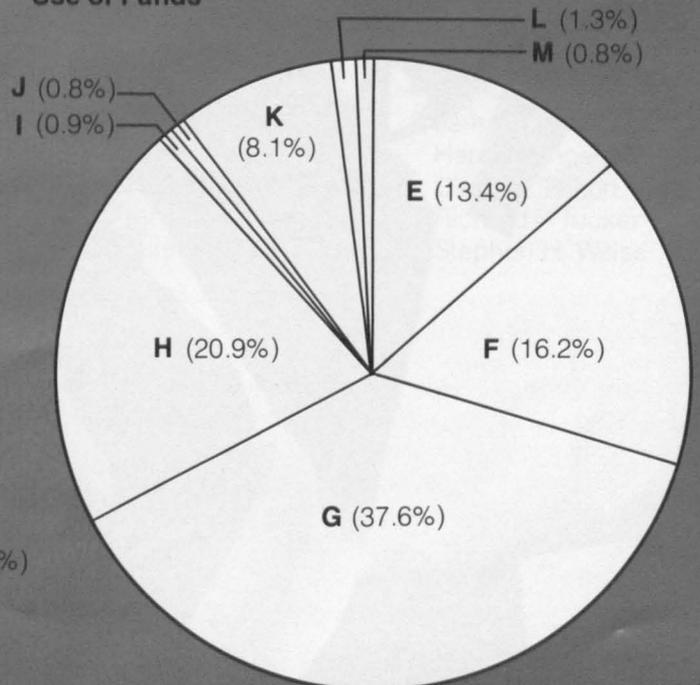
**Table 15**  
**Use of Funds**

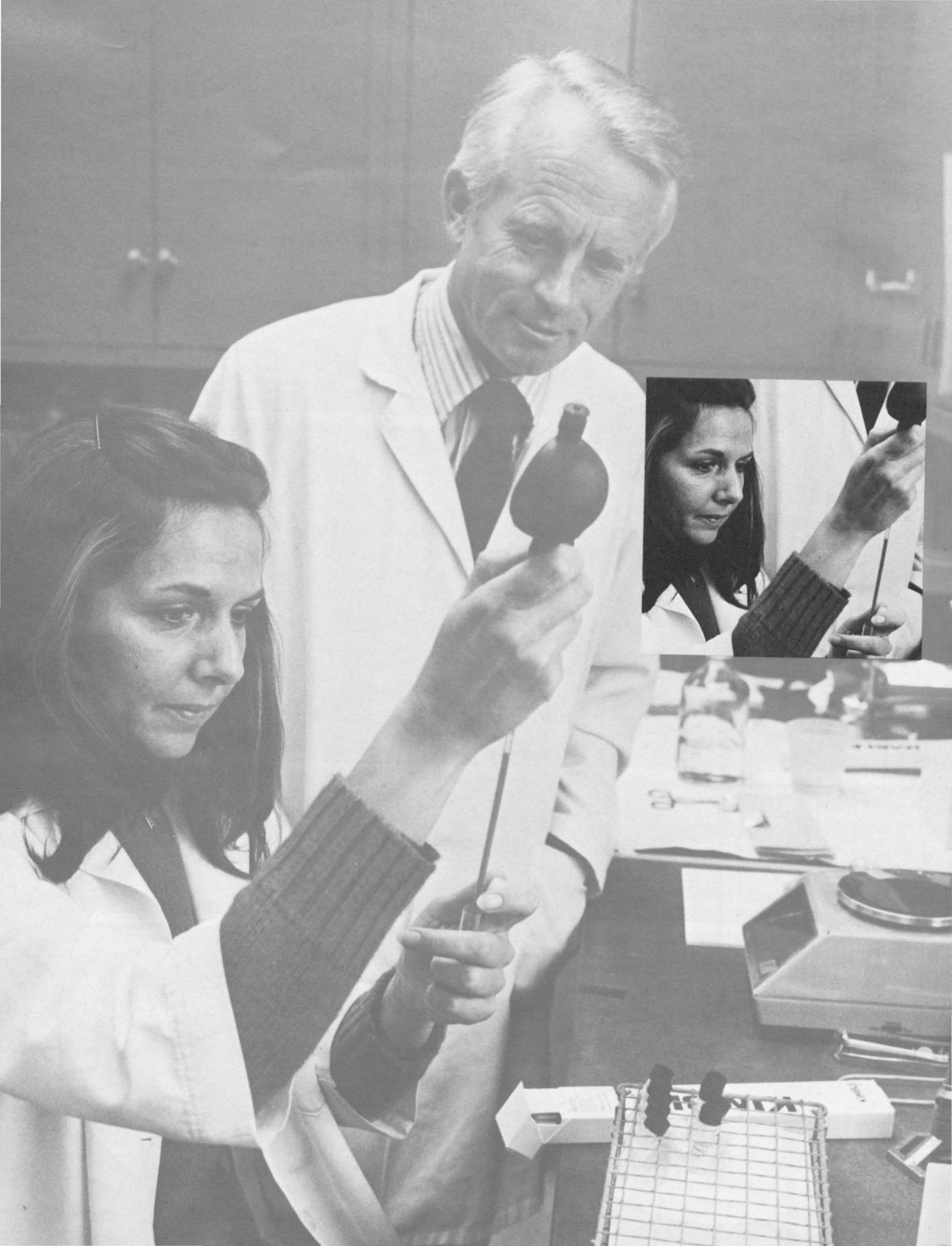
	1982-83	1981-82
<b>E.</b> Instruction and departmental research	\$ 3,291,743	\$ 3,209,934
<b>F.</b> Teaching Hospital	3,996,672	3,996,873
<b>G.</b> Organized research	9,249,292	8,641,413
<b>H.</b> Extension and public service	5,139,471	4,579,515
<b>I.</b> Academic support	227,628	237,769
<b>J.</b> Student services	193,259	178,791
<b>K.</b> Institutional support	1,994,598	1,519,278
<b>L.</b> Plant maintenance and operation	317,025	299,653
<b>M.</b> Student aid	200,210	184,584
Total	\$24,609,898	\$22,847,810

**Source of Funds**



**Use of Funds**





**Cornell University**

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 W. Keith Kennedy, *University Provost*  
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 Robert T. Horn, *Vice President and Treasurer*  
 Robert M. Matyas, *Vice President for*

*Facilities and Business Operations*  
 Richard M. Ramin, *Vice President for Public Affairs*  
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	Frances L. Loeb	Richard F. Tucker
	Walter R. Lynn	Stephen H. Weiss

\*Ex officio.  
 †Inactive.

*Note:* The persons listed on pages 27—29 were holding the indicated offices on June 30, 1983. Two appointments to the State University of New York Board of Trustees were pending.



## State University of New York

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Oscar E. Lanford, *Vice Chancellor for Capital Facilities*

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Wilbert J. LeMelle, *Associate Vice Chancellor for International Programs*

Sanford Levine, *University Counsel and Vice Chancellor for Legal Affairs*

Kenneth M. MacKenzie, *Associate Vice Chancellor for Academic Programs and Planning*

John J. Mather, *Associate Vice Chancellor for Continuing Education Programs and Public Service*

Donald D. O'Dowd, *Executive Vice Chancellor of the University*



Sherry H. Penney, *Vice Chancellor for Academic Programs, Policy, and Planning*

Robert Perrin, *Vice Chancellor for University Affairs and Development*

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James S. Smoot, *Vice Chancellor for Employee Relations and Educational Services*

Harry K. Spindler, *Vice Chancellor for Finance and Business*

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## New York State College of Veterinary Medicine

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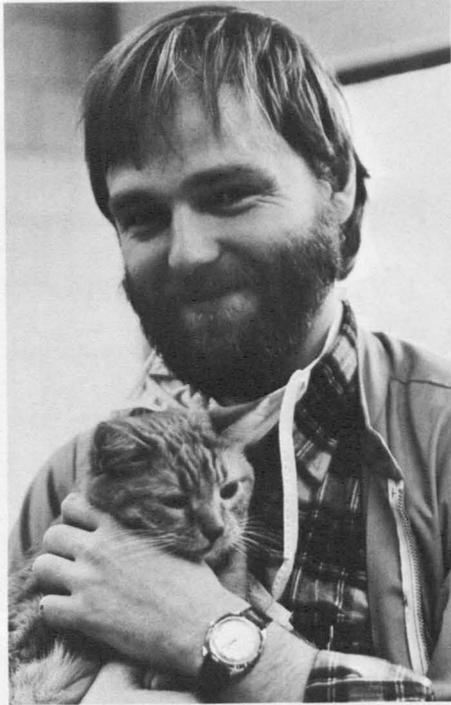
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Anyone interested in further information about the college or its programs is encouraged to request such information by mail or telephone. Writers are reminded to include the appropriate zip code for return mail.

Callers should be aware that most college offices are connected to the main switchboard, which may be reached between the hours of 8:00 a.m. and 5:00 p.m. on business days by dialing 607/256-5454. Individuals or offices may then be requested by name or by the appropriate extensions, given in the following lists as four-digit numbers preceded by an x. The seven-digit numbers that appear are for those college telephones not connected to the main switchboard. When those numbers are called, the main switchboard number should *not* be dialed.

### General Inquiries

General inquiries should be directed to

Edward C. Melby, Jr., Dean  
New York State College of  
Veterinary Medicine  
Cornell University  
Ithaca, New York 14853.

Telephone: x 2729

### Statistical Supplements

The following supplements, containing detailed statistical material compiled on the basis of the calendar year (1982), are available:

*Report of Necropsies*

*Report of Parasitological  
Examinations*

*Poultry Disease Diagnostic  
Laboratories*

Requests for any of the above should include the name of the document desired and should be addressed to

Annual Report Statistical  
Supplements  
New York State College of  
Veterinary Medicine  
Cornell University  
Ithaca, New York 14853.

### Special Programs and Units

Requests for information concerning the following special programs or facilities should be directed to the appropriate persons as listed below. All addresses are at the New York State College of Veterinary Medicine, Cornell University, Ithaca, New York 14853. See paragraph 2 on this page for an explanation of telephone numbers and the procedure for calling.

#### *Admissions and Student Affairs*

Ms. Marcia Sawyer  
C117  
Telephone: x 2700

#### *Baker Institute*

Dr. Douglas D. McGregor  
James A. Baker Institute for  
Animal Health  
Telephone: 277-3044

#### *Biomedical Communications*

Ms. Sandra Berry  
L21  
Telephone: x 2234

#### *Biomedical Electronics*

Mr. H. Donald Hinman  
621 Research Tower  
Telephone: x 2600

#### *Bovine Research Center*

Dr. Donald H. Schlafer  
325C Research Tower  
Telephone: x 2352

#### *Comparative Medicine*

Dr. George C. Poppensiek  
315 Research Tower  
Telephone: x 2770

#### *Computing Facility*

Mr. John Lewkowitz  
624 Research Tower  
Telephone: x 2606

#### *Continuing Education*

Dr. Charles E. Short  
426 Research Tower  
Telephone: x 2208

*Development and Public Affairs*

Mr. Ralph A. Jones  
G1 Research Tower  
Telephone: x 2744

*Diagnostic Laboratory*

Dr. Raymond H. Cypess  
207 Diagnostic Laboratory  
Telephone: x 2640

*Equine Drug Testing and Research*

Dr. George A. Maylin  
Telephone: 256-6555

*Equine Infectious Diseases,  
Laboratory for*

Dr. James H. Gillespie  
216 Research Tower  
Telephone: x 2402

*Equine Research Park*

Dr. Jack E. Lowe  
517 Research Tower  
Telephone: 256-7753

*Extension Service (Veterinary)*

Dr. Michael A. Brunner  
205 Diagnostic Laboratory  
Telephone: x 2640

*Feline Health Center*

Dr. Fredric W. Scott  
618A Research Tower  
Telephone: x 2414

*Graduate Study, Field of Immunology*

Dr. S. Gordon Campbell  
E317  
Telephone: x 2395

*Graduate Study, Field of Veterinary  
Medicine*

Dr. Leland E. Carmichael  
Graduate Field Office  
227 Research Tower  
Telephone: x 2276

*Laboratory Animal Services,  
Division of, and Center for Research  
Animal Resources*

Dr. Fred W. Quimby  
221B Research Tower  
Telephone: x 2524

*Library (Flower Veterinary Library)*

Ms. Susanne Whitaker  
C201  
Telephone: x 2510

*Mastitis Control Program*

Ms. Frances D. Barnes-Palleson  
Telephone: 533-7852

*Poultry Diagnostic Laboratories*

Dr. Bruce W. Calnek  
E117  
Telephone: x 2365

*Teaching Hospital*

Dr. Robert W. Kirk  
423 Research Tower  
Telephone:

(Large-Animal Clinic) x 2100  
(Small-Animal Clinic) x 2000  
(Dr. Robert W. Kirk) x 2029

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