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NEW YORK
STATE
COLLEGE
OF
VETERINARY
MEDICINE

CORNELL
UNIVERSITY

ANNUAL
REPORT
1985-86

NEW YORK STATE
VETERINARY MEDICINE

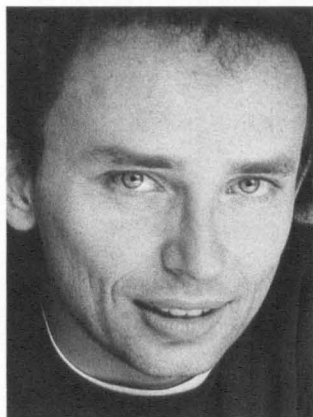
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A Statutory College of the State University of New York

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

Cornell University, Ithaca, New York

Eighty-ninth Annual Report

July 1, 1985–June 30, 1986

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 multibillion-dollar animal population.

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

This report is a summary of the activities, during the 1985–86 year, of the students, faculty, and staff who worked to accomplish that mission and, by doing so, 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

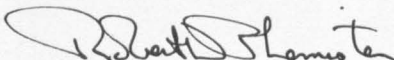
September 30, 1986

Frank H. T. Rhodes
President
Cornell University

Dear President Rhodes:

Pursuant to the requirements of the laws of New York State, I present herewith a report on the activities and the accomplishments of the faculty and staff of the New York State College of Veterinary Medicine for the year ending June 30, 1986, this being the eighty-ninth annual report of this college.

Respectfully submitted,



Robert D. Phemister
Dean

Office of the President

Cornell University
Ithaca, New York

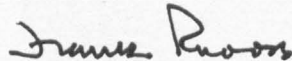
October 6, 1986

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

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 University, the report of the New York State College of Veterinary Medicine for the year beginning July 1, 1985, and ending June 30, 1986.

Sincerely yours,



Frank H. T. Rhodes
President

Office of the Chancellor

State University of New York
Albany, New York

October 16, 1986

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

Ladies and Gentlemen:

Pursuant to the law, the 1985-86 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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Ever Changing, Ever the Same

Education, research, and service have always been the interlocked missions of the College of Veterinary Medicine at Cornell. The missions will not change, but we must constantly try to improve the ways we accomplish them. We seek the best teachers and provide our students with the most advanced information, skills, and methods. We encourage attitudes and values that will serve them and society in the years to come. We conduct research in new ways, building knowledge and using instruments that were beyond imagination a few years ago. New understanding and new techniques allow us to provide clinical and diagnostic services that grow more diverse and more effective.

The pages that follow will give you a brief look at the strides we have made in teaching, research, and service in the recent past. But the past, at this college, extends into the future: today's students will never stop learning, and each research result provides the foundation for further studies and leads to improvements in the services we offer.

For those reasons we are more inclined to look forward than back. I want to tell you now of some of the opportunities and challenges we see ahead.

Students and Their Education

The College of Veterinary Medicine at Cornell receives more applications for admission and accepts a lower percentage of applicants than almost any other veterinary college in the country. Those two facts would seem to justify a sense of complacency about our student body.

On the contrary, we seek to increase the diversity and improve the quality of accepted students. Strengthening an intensive effort begun in 1967, Shenetta J. Selden joined the admissions staff this year with the mission of recruiting minority students from New York State and the eight contract states.

The Summer Apprentice Program, with support from the U.S. Department of Health and Human Services, is another step in that direction, encouraging minorities to consider careers in veterinary medicine by giving them employment in the college's research facilities. A similar program, funded by the college, helps minority college students to qualify for admission into the professional curriculum. Practical experience in the Teaching Hospital, the Department of Pathology, or the Mastitis Control Program enhances their ability to compete for admission. Thanks to efforts such as these, twenty-two minority students are now enrolled in the D.V.M. program. We hope to increase this number.

Considering the entire student body, its variety is growing for two principal reasons. First, graduates can choose from a greater range of career opportunities: not only veterinary practice but also positions with pharmaceutical firms, with colleges and universities, in biological research, and with federal and state agencies.

A second factor is this year's improved curriculum structure. It has many advantages, including better sequencing and integration of courses, greater emphasis on the relationships between clinical and basic sciences, and variable-length courses that distribute the work load more evenly. Its greatest advantage, however, is that it allows students to choose electives geared to their career goals and to take courses that will give them a better-balanced education.

But we still face one major dilemma: the cost of obtaining a D.V.M. degree. Our typical student is \$29,980 in debt by the time she or he graduates. Certainly many

gifted young people, facing that burden, decide they cannot afford to go into veterinary medicine no matter how good the career opportunities.

That regrettable decision is largely beyond our control. Ability to pay is not a factor when we accept an applicant for admission. In fact, the college makes strenuous efforts to provide financial help to every student who demonstrates a need. Last year aid to students totaled more than \$2 million, most of it in low-interest loans. One of our most urgent challenges is to provide funds for additional work opportunities, loans, and scholarship endowments.

Graduate Students: Key to the Future



Graduate programs at the college have the highest enrollment in our history. Of the 113 candidates for M.S. or Ph.D. degrees, 57 are D.V.M.'s and 5 are M.D.'s seeking advanced degrees for careers in teaching or research. With 59 registrants, the graduate Field of Veterinary Medicine heads the list, followed by the Fields of Physiology (26), Immunology (14), Toxicology (8), Microbiology (4), and Neurobiology and Behavior and Zoology with one each.

In line with our quest for a diverse student body, it is worth noting that many of those students have come from outside the United States. Others, not included in the totals above, are taking advanced courses at the veterinary college while earning graduate degrees in other fields at Cornell. This is a clear indication that our postdoctoral programs are known for quality. A recent external evaluation by the New York State Board of Higher Education confirms the fact.

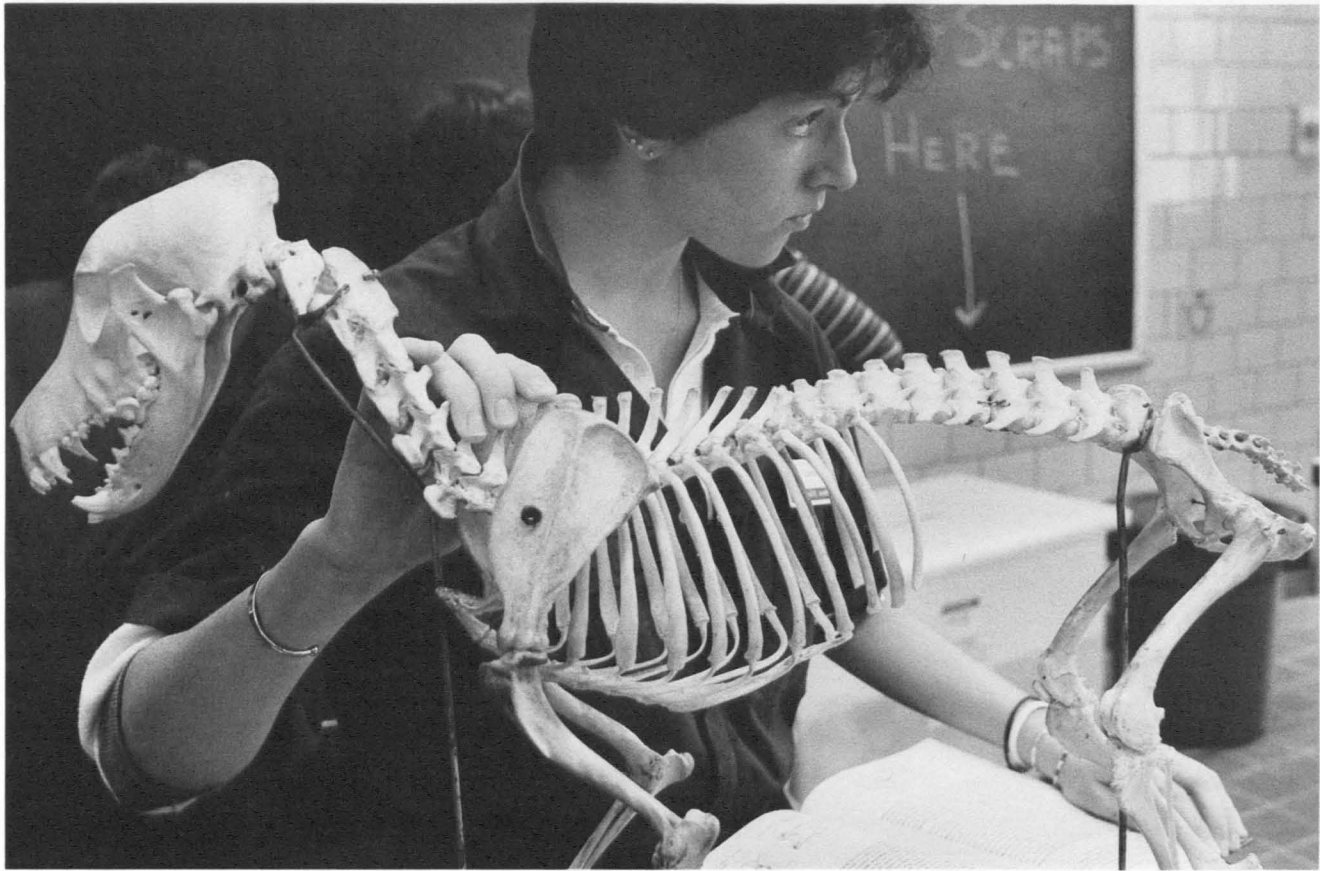
Government and private grants have done much to advance that quality, helping us to keep our capabilities at the leading edge. These, in turn, attract students determined to learn and apply the most advanced methods in such areas as molecular and cellular biology, immunology, pharmacology, and toxicology. Graduate students from the college and other parts of the university gain hands-on experience with the powerful new procedures that have emerged in recent years, including recombinant DNA technology, the use of monoclonal antibodies, and the application of sophisticated instruments like the fluorescence-activated cell sorter. Graduates able to employ such methods are needed to make significant contributions to tomorrow's veterinary practice, research, and teaching. I am confident that our current graduate students will further enhance the college's reputation.

Here again, we cannot rest on our laurels. We are determined to keep on seeking—and obtaining—major training grants for postdoctoral students as well as grants for the research facilities they use. The state, the nation, and the world stand to benefit from this investment.

An Outstanding Faculty: Secret of Success

Members of the college faculty recorded many significant accomplishments and won major honors in the year just past. There was one Fulbright grant, another faculty member was one of twenty in the nation to be named a scholar of the Pew Scholars Program, and a third earned a Senior International Fellowship from the Fogarty International Center. These and other awards attest to the international respect our faculty members enjoy.

Faculty honors rise from a combination of individual talents, those of colleagues, and the environment of the college. Faculty members' involvement with our busy clinics and the Teaching Hospital joins with intensely practical extension activities throughout the state to create superior working laboratories for their research.

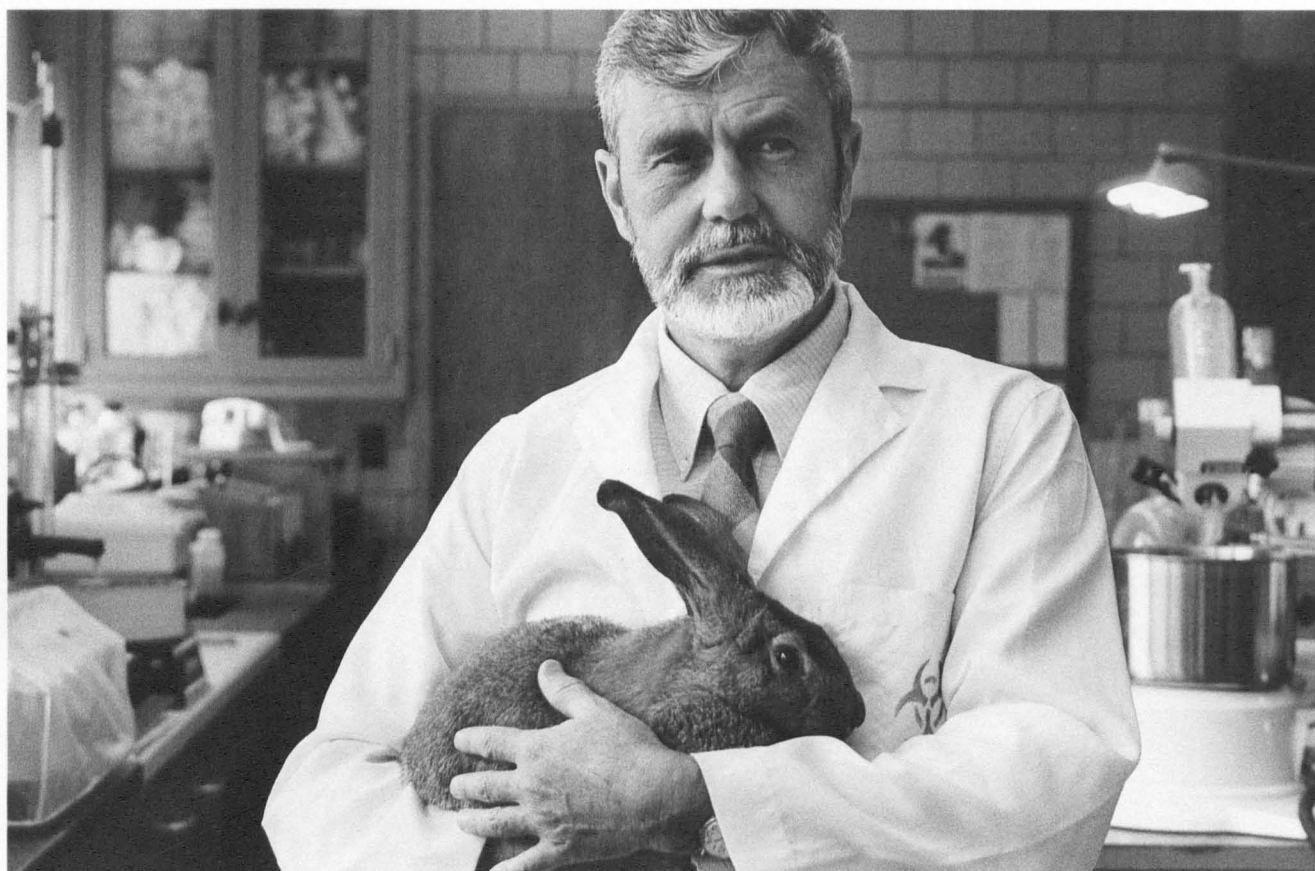


Our search for effective and inspiring teachers and scientists able to continue our traditions of research and service goes on. Partly because 71 percent of the 1986 entering class is female, we are especially eager to find more women faculty members. It is encouraging to note that the two most recent winners of the Norden Distinguished Teacher Awards were Dr. Sharon A. Center and Dr. N. Sydney Moise.

A Tradition of Service

From its earliest days, service to people and animals has been a central function of the college. The nature of the service, however, shifts. Originally the focus was almost entirely on farm animals. Over the years, pets and horses for leisure and sports have become increasingly significant. Recent changes in the life-styles of the population have increased the proportion of cat owners and made the care of exotic birds a substantial part of our teaching, research, and clinical service. Aquaculture, once dwindling in significance to the state, is regaining importance, prompting us to re-establish the Fish Diagnostic Laboratory (with partial funding from the New York State Department of Environmental Conservation) under the leadership of Dr. Paul Bowser.

In a move we consider a major step toward a greater recognition of the importance of population studies for veterinary medicine, we have created the Section of Epidemiology, largely replacing the Department of Preventive Medicine. Many of today's major diseases have multiple causes and can best be studied and prevented by observing large populations. New computer capabilities make this approach increasingly feasible. The section, which is a part of the Department of Clinical Sciences, is in a start-up mode, and a search for a new section chief is under way.



While the college has responded in various ways to changing needs, it continues to improve its traditional services to agriculture. Affiliated with the Diagnostic Laboratory are three extension veterinarians: Dr. Michael Brunner (dairy cattle), Dr. Barbara Straw (swine), and the newly appointed senior veterinary extension associate, Dr. Maire O'Connor (horses). One of the largest and most advanced mastitis control programs in the country has a new director, Dr. Philip M. Sears.

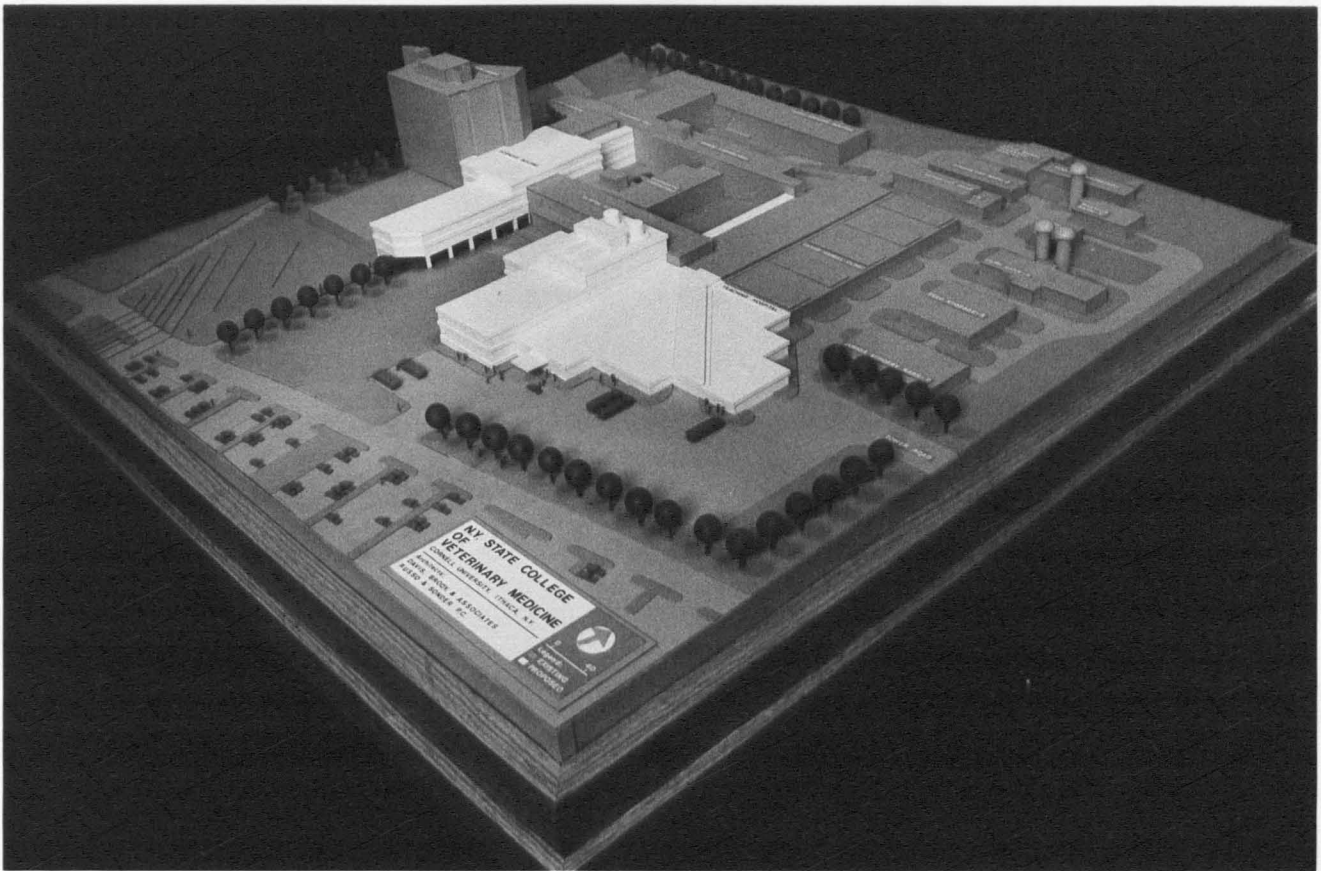
Three other diseases that have a major impact on livestock production and export—Johne's disease, bovine leukosis, and bluetongue—are the concerns of the new Three-Disease Program coordinated by Dr. Donald Lein.

In the Teaching Hospital new diagnostic ultrasound and nuclear medicine capabilities enable us to provide vastly increased and improved services. At the same time, we are giving students practical clinical experience with state-of-the-art technologies.

Facilities to Meet Greater Needs

Today we face a compelling demand for improvements in the college's physical plant. It is a necessity brought about by many factors.

First, funded research has increased from less than \$300 thousand to more than \$14 million in the past twenty-five years (more than a seventeenfold increase in constant dollars), magnifying our requirements for space and facilities. Second, contemporary research technologies and topics require not only new equipment but specially designed workplaces. Third, there has been a large expansion in the scope of services provided by the Large and Small Animal Clinics. Finally, not only do we have the greatest number of postdoctoral students in the college's history,



but the D.V.M. enrollment has also risen, standing now at 320 as opposed to 206 twenty-five years ago. In the same period the number of faculty members has grown from 37 to 129 and employees from 184 to 800.

The State University Construction Fund, recognizing that crowded and outdated buildings were obstacles to progress, commissioned the architectural team of Davis, Brody & Associates / Russo + Sonders to study conditions at the college and develop a facilities master plan.

The outside experts found a “clear and startling” need for about 155,760 square feet of additional space immediately. The first phase of expansion will completely replace the small-animal wing and begin a phased renovation of the Large Animal Clinic and other research, academic, and service facilities.

The team also reported a long-term need for a further 80,240 square feet to be used for a new teaching center, additional research laboratories, faculty and administrative offices, and other purposes. The estimated total cost of the project, involving 236,000 square feet of new construction and renovation of 79,500 square feet, is \$71 million. (Above is an architectural model highlighting the improved and expanded facilities proposed by the study.) Improvements of this scope are a major challenge for the college and the many constituencies it serves.

Meeting that challenge will enable us to work for those constituencies even more effectively—in education, research, and service.

Robert D. Phemister, Dean



EXCEPTIONAL
STUDENTS
MAKE
AN
EXCEPTIONAL
COLLEGE

Earning a D.V.M. degree at Cornell is far from easy. The course load is heavy, the courses themselves challenging—even arduous—and the faculty exacting. It is a wonder that the students can find time or energy for anything not directly related to the curriculum.

But they do. David Van Metre '89, for example, had already shown he was exceptional by qualifying for admission after only three years as an undergraduate in the New York State College of Agriculture and Life Sciences at Cornell. While there he worked at the Cornell pig farm, helping Professor Dean Boyd's graduate students on their research projects. David had a grade point average over 4.0 and took extra courses during summer school. He was just getting started at the veterinary college when he was named cocaptain of Cornell's varsity football team. During that tough first semester he earned a place on the District 1 Academic All-American first team and was a National Academic All-American on the second team. In addition, he was a two-time winner of the Cornell Scholar Athlete Award given by Victor Grohmann.

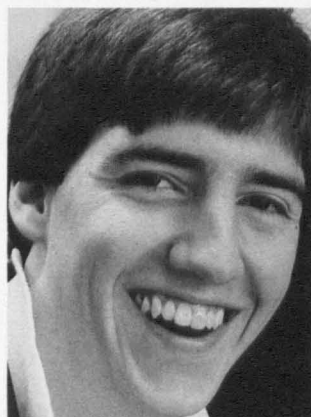
Arleigh Reynolds '86 also entered the college after three undergraduate years. He had been rowing on the Cornell varsity lightweight crew and was chosen to captain the rowing team while in his first year of veterinary studies. To make it more challenging, the crew was in double practice sessions during finals week, and Reynolds's last big examination came the day after his last big meet.

Students find time for cultural activities, too. Dr. Jay R. Georgi's brass ensembles are a tradition at the college. This year's quintet, made up largely of second-year students, gave a holiday concert that was a highlight of the winter season.

Anne Pierok '86 is one of the college's musical stars. Playing flute solos by Beethoven, Fauré, and Bach, she provided a beautiful prelude to the 1986 veterinary college commencement exercises.

David MacGibbon, a second-year student, applied his special skills directly to veterinary science and teaching. An expert in computer technology, he helped Dr. Drew Noden, of the Department of Anatomy, by developing and modifying student-friendly software to show the nervous system of an embryo in three dimensions. Students can turn the image on the screen in any direction.

Athletes, musicians, computer experts—D.V.M. students at the college are a diverse group. Lisa Wierzbicki Johnson and her husband, Bill, students in this year's graduating class, have attended many conferences and compared notes with veterinary students around the country. They are convinced that they and their classmates are better prepared than any other new doctors of veterinary medicine.





Education: The Heart of Our Mission

The college does not want to coddle candidates for the D.V.M. degree. We have, however, become concerned about student work loads, competing class schedules, and the intense pressures at examination time. With these considerations in mind, we have launched a program of curriculum reform.

We are reorganizing and rescheduling some courses so that they will be more useful to the students and will appear at more logical times in the academic sequence. For example, students at Cornell will now study clinical foundations in their first year, whereas most colleges delay the course until the third year. In addition, they first study healthy animals on the basis of the valid theory that you can't tell what is wrong until you understand what is right. A series of courses distributed over all four years stresses the connections between the basic sciences and the clinical sciences. And variable-length courses will reduce the number of subjects students must cover simultaneously. To enable candidates to select the career areas that are of greatest interest to them and work toward them throughout their years at the college, we offer a range of "selective" courses beyond those required in the core curriculum.

Along with all this we are analyzing the entire examination procedure with the aim of making examinations a functional part of the learning process rather than a cause for added stress. We are also seeking ways to improve the examinations themselves, fine-tuning them to the objectives of the college and the courses and developing techniques for testing skills and behavior. Simple written questions and answers cannot evaluate such factors.

The year saw other changes in the way the college furthers its educational mission. Dr. Charles E. Short, of the Department of Clinical Sciences, has developed Resusci-Dog and Resusci-Cat, models that teach cardiopulmonary resuscitation techniques without requiring live animals. Dr. Duncan Ferguson, of the Department of Pharmacology, is using computer simulation in a project called Sugar Doggy to demonstrate insulin therapy—its processes, effects, and duration—again without needing live animals.

Computer capabilities are an important element in the new courses in epidemiology for D.V.M. candidates and in the postdoctoral courses in analytical epidemiology.

Probably the most dramatic and promising new technologies on the college scene are the molecular microbiology and biotechnology facilities made possible by a grant from the Mabel Pew Myrin Trust. While their greatest value is in research, they also enable us to teach graduate students the techniques of modern molecular manipulation in bacteria and viruses.

Students, whether D.V.M. candidates or postdoctoral fellows, have demonstrated that they benefit from the outstanding learning opportunities at Cornell. For instance, in the challenging two-day examination conducted by the American College of Veterinary Pathology, the national pass rate is 30 percent. Of the eleven Cornell students who took the examination this year, nine passed.

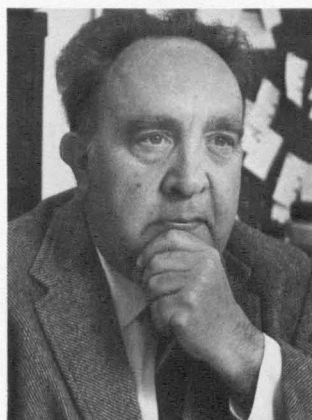
Further demonstrations are plentiful. Two new five-year training grants from the National Institutes of Health (NIH) were added to the three already established in the college; NIH also gave a five-year \$345,000 Physician Scientist Award to William Horne, a Ph.D. candidate in pharmacology; May Pian-Smith, another pharmacology graduate student, won two awards for her thesis; and Paul Millard earned the 1985 Fellowship in Pharmacology/Morphology from the Pharmaceutical Manufacturers Association.

No matter how well our students perform, we look for ways to improve their training and, as a direct result, their career opportunities. Veterinary practice is becoming a crowded field, but there are abundant openings in education, research, federal and state agencies, and industry for graduates with the kind of knowledge we can provide.

Research: Expanding Knowledge

During the past year grants and contracts for faculty research and related service programs at the veterinary college totaled approximately \$14.3 million, including some grants that have been continued for twenty-five years. Federal funding accounted for 44 percent of this year's total; New York State grants and contracts provided 43 percent. The rest, amounting to almost \$2 million, came from private sources.

Closer consideration of these figures highlights another important point: nearly half of all federal funding came through the National Institutes of Health, a component of the Department of Health and Human Services. Clearly most of those funds are provided to support research that contributes to a better understanding of diseases that affect humans as well as domestic animals.



For example, Dr. Fernando de Noronha, of the Department of Microbiology, earned two grants for his studies of feline leukemia, studies that could lead to a treatment for AIDS. Dr. Bruce W. Calnek, chairman of the Department of Avian and Aquatic Medicine, is studying Marek's disease in chickens, the first cancer proved to be caused by a herpes virus. The current studies attempt to determine what influences the course of the disease—genetics, the age of the victim, or differences among the viruses. The National Cancer Institute has totally supported Cornell's study of Marek's disease for the past twenty-five years and renewed the grant this year.

Cancer is also the subject of NIH-funded research by Dr. Bud Tennant, of the Department of Clinical Sciences. His studies are based on the fact that a disease affecting woodchucks is closely related to human liver carcinoma. The grants will allow him to establish disease-free strains of woodchucks and then to apply knowledge of their viral diseases to cancer in humans. Another clinical sciences faculty member, Peter Nathanielsz, M.D., who is collaborating closely with scientists from other Cornell units, is conducting NIH-supported research on fetal development in sheep and primates. His findings will be applicable in human medicine.

Aside from such specific projects, research throughout the college has a broad bearing on human as well as animal health. The Baker Institute's studies of canine parvovirus, for example, lead directly to a better understanding of the evolution and control of viruses in general, just as the work on canine osteoarthritis furthers knowledge of that disease in humans. Drs. Gillespie, Holmes, and Scott, in the Department of Microbiology, are studying the vaccinia virus as a vector of genetic information. Manipulating genes, they get important vaccine information and have produced good immune responses. Commercially useful vaccines should be the result.

Other research is directed toward subjects that have an impact on the economy of New York State. The Fish Diagnostic Laboratory was re-established this year in response to the increasing importance of freshwater game fish and saltwater shellfish in the state. Dr. Marilyn Wolfe is studying the occurrence of papillomas in lake fish to see whether they are an early warning of pollution.



Horses, for pleasure and for racing, continue to be important in the state. A grant from the Zweig Memorial Fund is supporting Dr. John Cummings's study of the equine intestinal nervous system. The purpose is to gain a better understanding and treatment of colic, a disease that is often disastrous. The same fund is supporting research to determine why, when a horse cools off too quickly, endotoxins are released, causing the hoof to separate from the toe, and to develop a treatment for the problem. Dr. Wolfgang Sack is directing the project.

The Equine Drug Testing and Research Program is funded largely by the New York State Racing and Wagering Board. This year Dr. George A. Maylin, the program director, introduced a sports monitor that measures heart and respiratory rate, gait, and other physiological functions in a horse running at top speed. The device, which is noninvasive, has already been tested on hundreds of valuable horses. Many other important efforts are conducted for the benefit of the agricultural community. Studies of food- and fiber-producing animals are major components of the college's research programs.

Service: Completing the Circle

The College of Veterinary Medicine's threefold mission forms an unbroken circle: research enhances service and teaching, students give valuable help in research and service as part of their training, and our service activities provide a wealth of vital information for research.

Even so, the prime purpose of our service is to help the people of the state and their animals. The Ambulatory Clinic is a good example. Following a tradition established by Dr. James Law, the college's first professor, who traveled from farm

to farm in a horse-drawn wagon, the clinic goes out to visit herds, providing the full range of veterinary services. It will treat individual animals needing attention, assess the disease situation, and gather blood and ration samples for examination. Dr. Francis A. Kallfelz uses blood chemistry analysis, automated hematology, and computer-aided ration evaluation to prepare recommendations, based on the specifics of each particular herd, for improving health and productivity.

Extension veterinarians specializing in bovine, equine, and swine medicine expand our services to reach the borders of the state. They relay the latest laboratory results and research findings to veterinary practitioners and farmers and conduct applied research in the field. Often they work closely with their counterpart extension agents from the New York State College of Agriculture and Life Sciences.

The college's services do not stop at the state line, however. The James A. Baker Institute for Animal Health provides information, often by telephone, to veterinary practitioners across the country. This past year it gave diagnostic assistance in over fifty-seven hundred cases of canine brucellosis. As a valuable by-product this type of cooperation helps the institute build an immense data base.

That data base is only one of many used by the newly established Section of Epidemiology. Drawing from them, the section can provide services of tremendous value to animal owners (especially those who manage herds of food animals) and the veterinarians who work with them. Drs. Hollis Erb and Janet Kranz are developing mathematical models for the study of epidemiological problems. In close cooperation with five universities selected for their locations stretching from California to Denmark, their service monitors the geographic movements of diseases and can predict times, places, and probable intensity of future outbreaks.



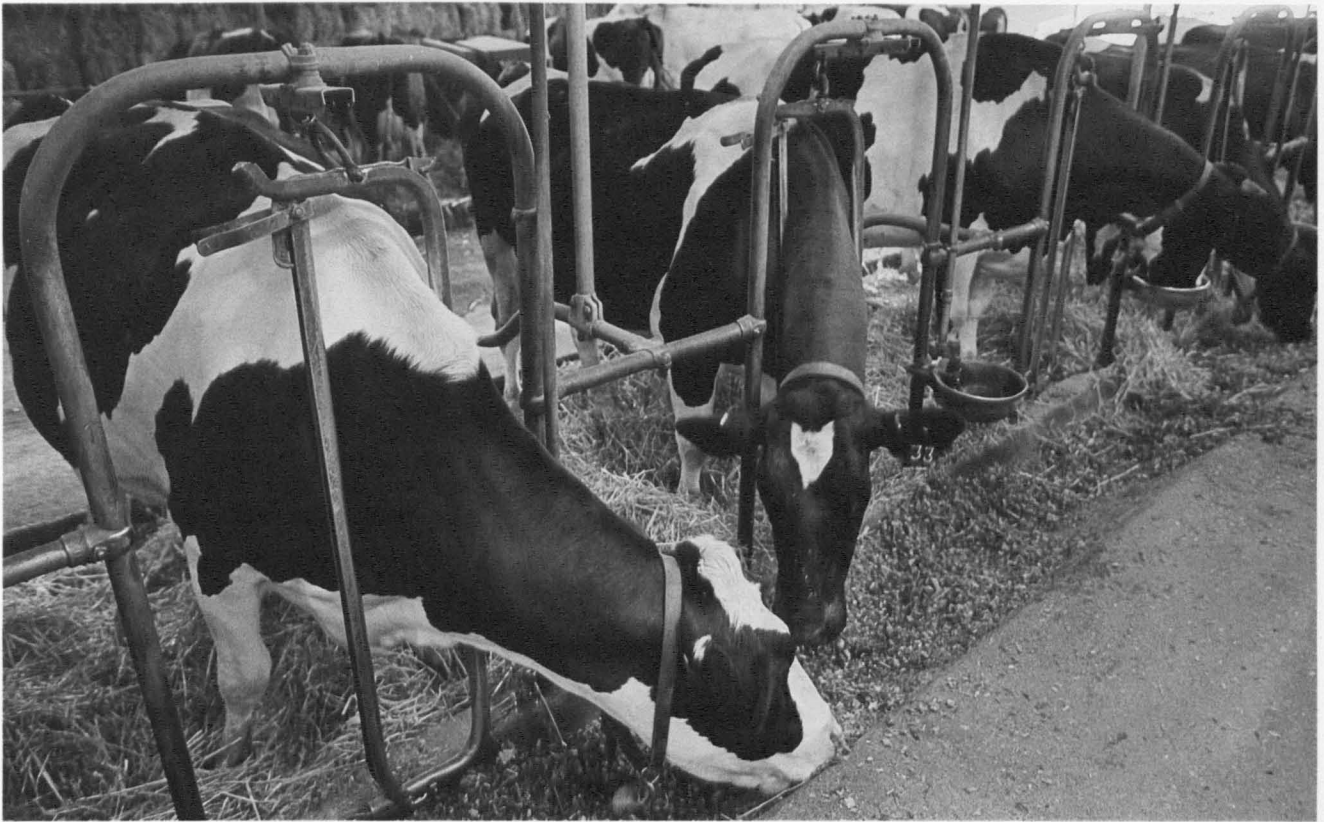
Also in epidemiology, Dr. Roy Pollock has developed a computer-based diagnostic information system. Because it is difficult for an active practitioner to keep abreast of the rushing developments in veterinary diagnosis and treatment, this system meets an urgent need. The practitioner enters answers to key questions posed by the system and immediately receives a ranked list of possible diagnoses together with references on further diagnostic tests and treatment.

The unique Feline Health Center also distributes helpful information, although in a more traditional way. Its director, Dr. Frederic W. Scott, is responsible for sending to practitioners studies on the transmission, diagnosis, and treatment of cat diseases. A colleague in Utrecht, Holland, translates the technical studies into European languages for distribution to veterinarians on the Continent. Cat owners receive nontechnical newsletters on the care of their pets.

Cat, dog, and bird owners in the Southern Tier of New York State make frequent use of the Small Animal Clinic, as do practitioners from further afield, when they confront problems demanding sophisticated techniques such as radiology, diagnostic ultrasound, and nuclear medicine.

Nuclear medicine is also available at the Large Animal Clinic, where it is especially helpful in equine orthopedics. This year the Teaching Hospital treated 2,300 large animals and 12,700 small animals from the state and beyond, while the Ambulatory Clinic advised on health and nutrition for herds totaling 36,000 animals.

In all of these activities, the Diagnostic Laboratory, headed by Dr. Raymond H. Cypess, is an essential. This year saw the addition of a new laboratory concentrating on anaerobes. Until recently these organisms, which thrive in an environment without oxygen, have been difficult to isolate and identify. It is even more difficult to combat them. Dr. Donald R. Callihan is evaluating methods for



recognizing them quickly in clinical specimens. His task becomes more urgent as the number of New York State cases diagnosed as involving anaerobes increases.

The state legislature has funded a new effort, the Three-Disease Program, dealing with bovine leukosis, bluetongue, and Johne's disease. Dr. Donald H. Lein, who directs the program, says Johne's disease presents the greatest challenge of the three. Timely diagnosis is extremely difficult because it infects calves but the symptoms do not appear until the animal is mature. Beyond that, because there is no known treatment, diseased animals must be culled. Finding an effective antibiotic or developing a vaccine is considered a distant hope at this time. The three diseases have a major impact on livestock production and export. In addition to conducting research, the new program will survey cattle in New York and certify those herds that are free of them.

The Mastitis Control Program, also state funded, is far from new, but it has a new director, Dr. Philip M. Sears. He is in charge of one of the most advanced programs of its kind in the country. Among other things, its research has made it possible for dairies to eliminate *Streptococcus agalactiae*, saving \$40 million worth of milk from being wasted every year in New York State.

In this state equine medicine is of special importance. The Equine Drug Testing Program, with its up-to-the-minute laboratory techniques, is providing unique services to the equine industry. It uses analytical chemistry and highly sophisticated instrumentation to detect medications as well as heavy metals, insecticides, and trace minerals in sports horses.

Because the college's equine program of education, research, and service is so significant to the state and to the college itself, the dean has set up a committee to review all its aspects. His hope is that the study will lead to even more-effective use of the facilities and human resources that have already achieved international distinction for the College of Veterinary Medicine.



New Appointments

Philip J. Ahrens, *visiting instructor*
Sami A. Al-Atiya, *visiting fellow*
Hector W. Alila, *senior research associate*
Abdullatife A. Al-Sager, *visiting fellow*
Jeffrey E. Barlough, *lecturer*
Andries P. Bruins, *visiting assistant professor*
Arsene Burny, *adjunct professor*
Bruce D. Car, *instructor*
Richard A. Cerione, *assistant professor*
Cynthia Chazotte, *postdoctoral fellow*
Michael A. Collier, *senior research associate*
David A. Covell, Jr., *postdoctoral fellow*
Frederick M. Enright, *visiting professor*
Cornelia E. Farnum, *assistant professor*
David P. Gallagher, *lecturer*
Trjo T. Grohn, *postdoctoral fellow*
Marian C. Horzinek, *courtesy professor*
Johnny D. Hoskins, *visiting professor*
Roger S. H. Hsu, *postdoctoral associate*
Matt J. Kessler, *adjunct associate professor*
Masataka Korenaga, *postdoctoral associate*
John Krupinski, *postdoctoral associate*
John A. Lambert, *assistant dean for administration*
Cha Soo Lee, *visiting professor*
Thomas V. Little, *instructor*
Thomas F. Lomangino, Jr., *director, laboratory operations*
Glenn L. Millhauser, *postdoctoral fellow*
Mark L. Morris, *adjunct associate professor*
Linda M. Nowak, *assistant professor*
Maire O'Connor, *senior extension associate*
Robert D. Phemister, *professor and dean*
Robert F. Playter, *professor and director, Veterinary Medical Teaching Hospital*
James T. Rothwell, *instructor*
Philip M. Sears, *associate professor and director, New York State Mastitis Control Program and Quality Milk Promotion Services*
Christopher Seeger, *assistant professor*
Zuzzer A. Shamsuddin, *director, laboratory operations*
Hulimangala H. L. Shivaprasad, *assistant professor*
Kerstin Thoren-Tolling, *visiting associate professor*
Paul C. Tsang, *postdoctoral fellow*
Charles R. Wallace, *postdoctoral fellow*
Lars O. G. Weidolf, *postdoctoral fellow*
Etta M. Wertz, *instructor*
Peter R. Woolcock, *senior research associate*
Janet Wright, *research associate*

Jerry M. Wright, *postdoctoral fellow*
Toshihiko Yada, *postdoctoral associate*
Dolores K. Young, *research associate*

Promotions and Title Changes

Betty A. Achatz, *director, laboratory operations* (from technician)
Judith A. Appleton, *senior research associate* (from research associate)
Michael A. Brunner, *senior research associate* (from assistant professor)
S. Gordon Campbell, *professor and acting chairman, Department of Microbiology, and associate dean for academic affairs* (from professor and acting chairman)
Wayne V. Corapi, *veterinary assistant* (from postdoctoral fellow)
Alexander deLahunta, *professor and chairman, Department of Anatomy* (from professor and chairman, Department of Clinical Sciences)
Gary M. Dunny, *associate professor* (from assistant professor)
George L. Foley, *veterinary resident* (from postdoctoral fellow)
Joanne Fortune, *associate professor* (from assistant professor)
Christopher K. Grant, *adjunct associate professor* (from courtesy assistant professor)
Sajjad A. Haider, *associate professor* (from senior research associate)
Gerard J. Hickey, *postdoctoral associate* (from veterinary assistant)
Lennart P. Krook, *professor and acting chairman, Department of Veterinary Pathology* (from professor and associate dean for postdoctoral education)
Robert M. Lewis, *professor* (from professor and chairman, Department of Veterinary Pathology)
Pamela Luther, *senior resident* (from postdoctoral fellow)
Deedra K. McClearn, *postdoctoral fellow* (from research associate)
Michael F. McEntee, *veterinary resident* (from postdoctoral fellow)
Paul J. Millard, *postdoctoral fellow* (from postdoctoral associate)
F. Charles Mohr, *instructor* (from veterinary assistant)
Drew M. Noden, *professor* (from associate professor)
David Petzel, *postdoctoral fellow* (from visiting fellow)
Thomas J. Reimers, *associate professor* (from assistant professor)
Gary D. Ross, *instructor* (from postdoctoral associate)
John C. Semmler, *assistant dean for external programs and research administration* (from assistant dean for facilities and research administration)



Sonjia M. Shelly, *assistant professor* (from instructor)
 Arja H. Soliman, *visiting fellow* (from research associate)
 David G. Sondak, *director, laboratory operations* (from technician)
 Howard Steinberg, *veterinary resident* (from postdoctoral fellow)
 Brian A. Summers, *associate professor* (from assistant professor)
 John F. Timoney, *professor* (from associate professor)
 Rory J. Todhunter, *assistant professor* (from instructor)
 Nancy I. B. Wurster, *senior research associate* (from research associate)

Completed Appointments

Marjan J. C. Beerthuis, *visiting fellow*
 John H. Burton, *visiting associate professor*
 Albert Cabero-Roura, *visiting fellow*
 Sara L. Cosby, *visiting assistant professor*
 Kristian Dalsgaard, *visiting professor*
 Mohamed Dessouky, *visiting associate professor*
 Samuel Edelstein, *visiting associate professor*
 Edmund L. Erde, *visiting associate professor*
 Nils E. Hakasou, *visiting fellow*
 Jinshu Jiang, *visiting fellow*
 Sanet N. Kotze, *lecturer/visiting fellow*
 Lora E. Miller, *lecturer*
 Amira H. Mohamed, *visiting fellow*
 James O. Noxon, *assistant professor*
 Ram C. Purohit, *visiting professor*
 Ibrahia Tukenmez, *visiting fellow*

Resignations

Masao Asari, *visiting assistant professor*
 Juanelle N. Boyd, *research associate*
 Carl T. Brighton, *adjunct professor*
 Robert B. Brown, *assistant dean for administration*
 Larry C. Clark, *assistant professor*
 Gary L. Cockerell, *associate professor*
 Michael W. Cole, *director, laboratory operations*
 Jonathan B. Crowther, *postdoctoral associate*
 Gregory O. Freden, *postdoctoral fellow*
 Kathleen L. Hawkins, *assistant professor*
 Elisco M. Hernandez-Baumgarten, *visiting professor*
 Susan A. Iliff, *instructor*
 Louis J. Laratta, *instructor*
 Yeon S. Lee Chang, *visiting assistant professor*
 Halyna A. Liszczynskij, *assistant librarian*
 Ziqing Liu, *visiting fellow*
 Adele Martel, *visiting fellow*



David M. Mulligan, *instructor*
 Juan A. Montaraz, *postdoctoral associate*
 Dominique Romatif-Silvestre, *postdoctoral associate*
 Eric G. Schoettker, *director, laboratory operations*
 Richard C. Sheasley, *director, laboratory operations*
 Arja H. Soliman, *visiting fellow*
 James W. Stave, *postdoctoral associate*
 Richard A. Stripp, *director, laboratory operations*
 Rory J. Todhunter, *assistant professor*
 Mary Lou Tortorello, *research associate*
 C. Lee Tyner, *instructor*
 Vikram H. Vakharia, *research associate*
 Melissa C. Woan, *research associate*
 Dolores K. Young, *research associate*
 Roland D. Zwahlen, *visiting fellow*

Retirements

Howard E. Evans, *professor* (to professor emeritus)
 Catherine G. Fabricant, *senior research associate* (to visiting fellow)
 Julius Fabricant, *professor* (to professor emeritus)
 Robert W. Kirk, *professor* (to professor emeritus)
 Charles G. Rickard, *professor* (to professor emeritus)

Deaths

Peter Olafson, *professor emeritus*

Table 1
Continuing Education, 1985–86

<i>Program</i>	<i>Participants</i>	<i>Hours</i>
Conference for Veterinarians, 78th Annual	400	18.0
Olafson Pathology Short Course	49	50.0
Bovine Reproduction Workshop	31	8.0
Bovine Embryo Transfer Workshop	34	16.0
Eastern International Veterinary Practitioners Workshop	80	8.0
Lendings, autotutorial programs: 74		

Table 2
Laboratory Animals Housed and Cared for by the College, 1985–86

<i>Species</i>	<i>Daily Average</i>	<i>Acquisitions during the Year</i>
Calves	11	18
Cats	213	451
Chicks	1,657	5,344
Cows	69	3
Dogs	357	549
Ferrets	5	24
Frogs	3	15
Goats	13	3
Guinea pigs	58	87
Hamsters	12	64
Horses	241	166
Mice	4,455	24,997
Mules/burros	16	9
Ponies	85	67
Primates	4	5
Rabbits	180	615
Rats	1,335	8,620
Sheep	416	189
Swine	4	1
Turtles	0	24
Woodchucks	553	695
Total*	9,687	41,946

*Laboratory animals housed and cared for by the Division of Laboratory Animal Services: daily average, 4,157; total acquisitions during the year, 23,526.

Table 3
Library Use, 1985–86

On campus	
Reserve books (in-library use)	11,095
Books lent (home use)	23,425
Photocopy items provided (in lieu of loans)	18,489
Audiovisuals and software used	7,750
Computer searches performed	1,456
Total on campus	62,215
Interlibrary	
Books lent	63
Photocopy items provided	528
Books borrowed	132
Photocopy items received	1,202
Total interlibrary	1,925

Table 4
Library Holdings, 1985–86

Bound volumes	
At beginning of year	74,973
Acquisitions	1,273
Less withdrawals	2,235
Total bound volumes	74,011
Audiovisual items	23,827
Periodicals and annuals	1,239

Table 5
Degrees Awarded, 1985–86

D.V.M. (with distinction: 7)	83
M.S.	8
Ph.D.	13

Table 6
Interns and Residents, 1985–86

Interns	10
Residents	22
Senior residents	3

Table 7
Clinical Patients and Diagnostic Examinations, 1985–86

	<i>Horses</i>	<i>Cattle</i>	<i>Sheep & Goats</i>	<i>Swine</i>	<i>Dogs</i>	<i>Cats</i>	<i>Birds</i>	<i>Others</i>	<i>Total</i>
Medical and surgical patients	1,615	569	71	8	8,840	3,899	246	143	15,391
Ambulatory Clinic patients	2,119	37,429	559	764					40,871
Clinical pathology specimens	6,913	3,853	457	28	13,437	3,860		1,359	29,907*
Diagnostic Laboratory tests	26,820	455,946	4,126	2,063	15,989	6,550	464	3,507	515,465
Necropsies	370	373	78	48	483	303	12	217	1,884
Surgical pathology specimens	716	451	63	32	6,167	1,326	35	214	9,004
Laboratory animal examinations		64	21		166	96	19	1,254	1,620
Aquatic animal accessions								1,870	1,870†
Poultry Disease Laboratories							7,450		7,450‡
Quality Milk Promotion Services (Mastitis Control Program)	1	173,929	400		1			3	174,334
Total	38,554	672,614	5,775	2,943	45,083	16,034	8,226	8,567	797,796

*The Clinical Pathology Laboratory performed 39,188 tests on the 29,907 specimens.

†In addition to the work at the Marine Biological Laboratory, this includes 31 accessions at the Fish Diagnostic Laboratory.

‡This includes 900 pet, exotic, and wild birds.

Table 8
Geographic Distribution of Accepted Applicants, Class of 1990

<i>Legal Residence</i>	<i>Number</i>
New York	59
Connecticut	2
Colorado	1
Delaware	1
Florida	1
Maine	1
Maryland	4
Massachusetts	1
New Hampshire	1
New Jersey	6
Rhode Island	1
Vermont	2

Table 10
Qualifications of Accepted Applicants, Class of 1990

	<i>Number of Students</i>	<i>Percentage of Class</i>
Amount of preveterinary preparation		
Fewer than four years of college	4	5
Four years of college	55	69
More than four years of college (graduate level)	21	26
Institution previously attended		
Cornell University	35	44
Other	45	56
Field of preparatory study		
Animal science (or related)	23	29
Biological sciences (or related)	47	59
Other	10	12

Table 9
Graduate Students at the College of Veterinary Medicine, 1985–86

Candidates for the Ph.D. degree	84
Candidates for the M.S. degree	22

Table 11
Summary of Grants and Contracts Awarded, 1985–86

<i>Recipient</i>	<i>For 1985–86</i>	<i>For Subsequent Years</i>	<i>Total</i>
Administration	\$ 635,953	\$ 392,375	\$ 1,028,328
Anatomy	102,168	53,201	155,369
Avian and Aquatic Animal Medicine			
Department program	659,166	1,396,135	2,055,301
Agriculture and markets contract	239,165	0	239,165
Total avian and aquatic animal medicine	898,331	1,396,135	2,294,466
Clinical Sciences	1,919,373	1,644,001	3,563,374
Diagnostic Laboratory			
Agriculture and markets contract	2,567,197	0	2,567,197
Equine Drug Testing and Research Program	3,353,508	0	3,353,508
Other	327,368	117,178	444,546
Total Diagnostic Laboratory	6,248,073	117,178	6,365,251
Microbiology			
Department program	737,715	368,673	1,106,388
Baker Institute for Animal Health	1,023,967	666,602	1,690,569
Total microbiology	1,761,682	1,035,275	2,796,957
Pathology	516,762	210,067	726,829
Pharmacology	831,727	653,012	1,484,739
Physiology	1,273,306	3,016,020	4,289,326
Preventive Medicine	121,674	132,505	254,179
Grand total	\$ 14,309,049	\$ 8,649,769	\$22,958,818

Note: Figures include direct and indirect costs for all grants and contracts.

Table 12
Predoctoral Student Enrollment, 1985–86

Candidates for the D.V.M. degree	
Class of 1986	83
Class of 1987	78
Class of 1988	78
Class of 1989	79
Total	318
Cornell undergraduates taking courses in the college (full-time equivalents)	128

Table 13
Admission Summary, Class of 1990

<i>Area</i>	<i>Applicants</i>	<i>Interviewed</i>	<i>Accepted</i>
New York	238	101	59
Contract states	121	51	17
Other	107	26	4
Total	466	178	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, 1984, through June 30, 1985, and July 1, 1985, through June 30, 1986. These figures do not include expenditures for salary fringe benefits, estimated for 1985-86 at \$5,930,108, or for general support services.

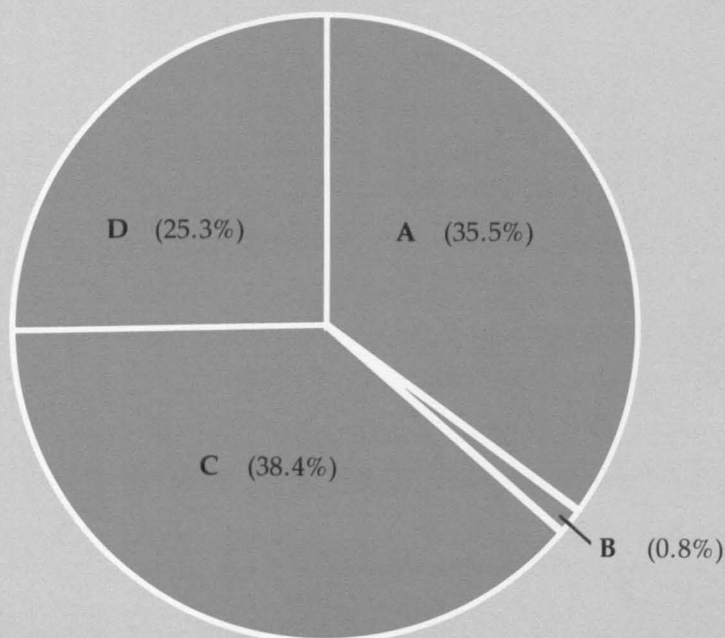
Table 14
Source of Funds

	1985-86	1984-85
A. State appropriation	\$12,439,068	\$10,832,754
B. Federal appropriation	273,810	282,847
C. Grants and contracts	13,451,448	12,570,522
D. College income	8,861,610	7,635,397
Total	\$35,025,936	\$31,321,520

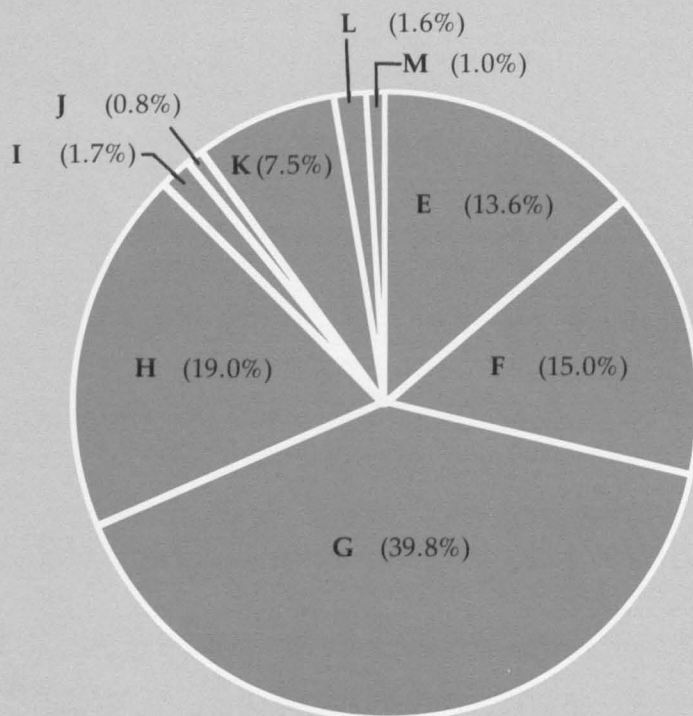
Table 15
Use of Funds

	1985-86	1984-85
E. Instruction and departmental research	\$ 4,778,191	\$ 4,245,915
F. Teaching Hospital	5,245,085	4,570,435
G. Organized research	13,926,108	12,644,060
H. Extension and public service	6,655,559	6,226,624
I. Academic support	610,973	390,947
J. Student services	263,928	225,344
K. Institutional support	2,635,143	2,274,029
L. Plant maintenance and operation	569,183	475,129
M. Student aid	341,766	269,037
Total	\$35,025,936	\$31,321,520

Source of Funds



Use of Funds





Cornell University

Administration

Frank H. T. Rhodes, *president of the university*
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 Thomas H. Meikle, Jr., *provost for medical affairs*
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 Richard M. Ramin, *vice president for public affairs*
 James A. Sanderson, *chief investment officer*
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 Barry B. Adams, *vice provost for undergraduate education*
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 Walter J. Relihan, Jr., *university counsel and secretary of the corporation*
 Joseph B. Bugliari, *dean of the University Faculty*

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*Ex officio.

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	Darwin R. Wales



New York State College of Veterinary Medicine

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Ralph A. Jones, *director of public affairs*
John M. Lewkowicz, *director of the Computing Facility*
Karen Redmond, *director of public information*
Ann Marcham, *executive staff assistant*
Neil L. Norcross, *secretary of the college*
Susanne K. Whitaker, *librarian, Flower Veterinary Library*

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Raymond H. Cypess, *director, Diagnostic Laboratory*
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Robert F. Playter, *director, Veterinary Medical Teaching Hospital*
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Philip M. Sears, *director, Quality Milk Promotion Services (Mastitis Control Program)*

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Richard McGuire, *New York Farm Bureau*

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Stephen H. Weiss, *managing partner, Weiss, Peck & Greer*





FURTHER INFORMATION

All college offices may be reached by dialing directly. The area code is 607. The college information number is 253-3000. An operator is on duty from 8:00 a.m. to 5:00 p.m. Monday through Friday.

General Inquiries

General inquiries should be directed to:
Robert D. Phemister, Dean
New York State College of Veterinary Medicine
Cornell University
Ithaca, New York 14853-6401
Telephone: 253-3729

Statistical Supplements

The following supplements, containing detailed statistical material, 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 14853-6401

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 14853-6401.

Admissions and Student Affairs
Ms. Marcia J. Sawyer
C117
Telephone: 253-3700

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

Biomedical Communications
Ms. Sandra P. Berry
L21
Telephone: 253-3234

Biomedical Electronics
Mr. H. Donald Hinman
621 Research Tower
Telephone: 253-3600

Bovine Research Center
Dr. Donald H. Schlafer
325C Research Tower
Telephone: 253-3352

Comparative Medicine
Dr. George C. Poppensiek
315 Research Tower
Telephone: 253-3770

Computing Facility
Mr. John M. Lewkowicz
624 Research Tower
Telephone: 253-3606

Contagious Equine Metritis Quarantine Station
Dr. Donald H. Lein
206 Diagnostic Laboratory
Telephone: 253-3900

Continuing Education
Dr. Charles E. Short
427 Research Tower
Telephone: 253-3200

Development and Public Affairs
Mr. Ralph A. Jones
G2 Research Tower
Telephone: 253-3744

Diagnostic Laboratory
Dr. Raymond H. Cypess
209 Diagnostic Laboratory
Telephone: 253-3900

Equine Drug Testing and Research
Dr. George A. Maylin
Telephone: 255-6555

Equine Infectious Diseases, Laboratory for
Dr. James H. Gillespie
216 Research Tower
Telephone: 253-3402

Equine Research Park
Dr. John E. Lowe
517 Research Tower
Telephone: 255-7753 or 253-3100

Extension Service (Veterinary)
Dr. Michael A. Brunner
204 Diagnostic Laboratory
Telephone: 253-3900

Feline Health Center
Dr. Frederic W. Scott
618 Research Tower
Telephone: 253-3414

Graduate Study, Field of Immunology
Dr. Robin G. Bell
James A. Baker Institute for Animal Health
Telephone: 277-3044

Graduate Study, Field of Physiology
Dr. Howard Howland
W201 Seeley Mudd Hall
Telephone: 255-4716

Graduate Study, Field of Veterinary Medicine
Dr. John F. Timoney
Graduate Field Office
C-324 Schurman Hall
Telephone: 253-3391

*Laboratory Animal Services, Division of, and Center for
Research Animal Resources*
Dr. Fred W. Quimby
221 Research Tower
Telephone: 253-3520

Library (Flower Veterinary Library)
Ms. Susanne Whitaker
C201
Telephone: 253-3510

Poultry Diagnostic Laboratories
Dr. Bruce W. Calnek
E113
Telephone: 253-3365

*Quality Milk Promotion Services
(Mastitis Control Program)*
Dr. Philip M. Sears
Telephone: 255-8202

Teaching Hospital
Dr. Robert F. Playter
G129
Telephone:
(Large Animal Clinic) 253-3100
(Small Animal Clinic) 253-3060
(Dr. Robert F. Playter) 253-3030

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