New York State College of Veterinary Medicine
Cornell University
Annual Report 1974-75
November 21, 1975

President Dale R. Corson
300 Day Hall
Cornell University

Dear President Corson:

Pursuant to the requirements of the laws of New York State, I present herewith a report of the activities and accomplishments of the faculty and staff of the New York State College of Veterinary Medicine for the year ending June 30, 1975, this being the seventy-eighth annual report of this College.

Respectfully submitted,

Edward C. Melby, Jr.
Dean

November 24, 1975

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

Sirs:

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, 1974, and ending June 30, 1975. This report is submitted in accordance with requirements of Section 5711 of Article 115 of the State Education Law.

Sincerely,

Edward C. Melby, Jr.
Dean

December 23, 1975

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

Sirs:

Pursuant to the law, the 1974–75 Annual Report of the New York State College of Veterinary Medicine at Cornell University is herewith submitted.

Very respectfully yours,

Ernest L. Boyer
Chancellor

Dale R. Corson
President
The New York State College of Veterinary Medicine at Cornell University in Ithaca, New York, is the primary health resource for the state’s 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 1974–75 fiscal year, of the students, faculty, and staff who worked to accomplish this mission and, thereby, to justify the public trust.
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Expanding Horizons
It has been more than one hundred years since James Law came to Ithaca, a member of Cornell’s original faculty and the first professor of veterinary science at an American university. And it has been more than eighty years since the New York State Legislature formalized its commitment to veterinary pursuits by creating the Veterinary College. Our mission then, as today, was threefold: to train young people to be veterinarians, to search for answers to problems of animal health, and to spread learning and skills throughout the state. But today’s arena is vastly larger than the 1894 legislature could have imagined. As the world has shrunk, the horizons of veterinary medicine have stretched.

The practitioners of a century ago were, more often than not, tough but kindly men who trudged through muddy barnyards and worked by lantern light at the side of ailing horses and laboring cows. Bovine births and equine epidemics—and, indeed, muddy barnyards—are still part of the veterinary scene, but we are acutely aware that the nourishment and well-being of all the earth’s inhabitants are inextricably bound together. To be concerned with animal health is to be involved in human health; to study animal diseases is to seek answers that bear directly on the alleviation of human suffering; to improve the lot of one kind of living creature is to affect the lot of all.
To reflect more accurately our broadened mission—a mission that now closely parallels that of colleges of human medicine—the New York State Legislature this year changed the name of the College through an act to amend the state education law. Signed by Governor Hugh L. Carey early in 1975, the act officially designates the institution as the New York State College of Veterinary Medicine.

In addition to the change in name, the emendation specifies the inclusion of the following in the list of College objectives as defined in the law: "to give instruction in the normal structure and function of the animal body, in the pathology, prevention, and treatment of animal diseases, and in all matters pertaining to biomedical science as applied to animals and correlatively to the human family."

This has been a portentous year for the College, and the report on the following pages summarizes some of the significant developments. New construction is under way; new equipment has been added; the curriculum has been expanded; student applications are up nearly 50 percent compared to two years ago; services and facilities are undergoing reorganization; and, in the face of restricted budgets, the faculty and staff is responding with extraordinary dedication and efficiency.

Nevertheless, we feel that perhaps the most significant development of this active year may prove to be our new name, making our broadening mission a matter of public record.
Mounting pressure to increase the quality and quantity of human food supplies; inflated economic influences, demanding ever-more-efficient methods of food production; greater awareness of the importance of recreational animals in the pursuit of an improved quality of life for all citizens; and the interrelationship of all living creatures in maintaining a healthful climate for life on earth are some of the factors pointing up the significance of public service as a prime mission of the College of Veterinary Medicine. As the chief animal health resource for New York State and for much of the heavily populated Northeast, the College is in a unique position to participate directly in effecting solutions to these vital problems. Knowledge gained through research and the application of procedures at the College is disseminated through a complex network of activities.

Direct clinical and diagnostic service was rendered to more than a quarter of a million animals through the hospitals, clinics, and laboratories of the College. (See table 2, page 22, for a summary of clinical and diagnostic activities.)

Practicing veterinarians took advantage of sixteen days of continuing education opportunities on campus: a total of 1,078 attended the three-day Annual Conference in January, the five-day Summer Institute in June, several two-day surgery workshops, and other workshops and seminars. A monthly newsletter was sent to 1,500 veterinarians.

Information and techniques were communicated to producers of dairy, beef, pork, poultry, and fish products via the many field laboratories across the state, publications such as the *Mastitis Quarterly*, faculty presentations to groups, hundreds of "trouble-
shooting’’ trips by faculty and staff, and personal responses to thousands of individual inquiries. (The College extension veterinarian alone responded to nearly 1,000 letter and telephone requests for information.) College personnel also addressed groups of breeders and other professionals in the companion animal field and conducted six eye clinics dealing with congenital and hereditary eye defects in dogs. A total of nearly 100 talks was given to lay groups within the state.

On the national and international level, College faculty members shared information with colleagues in the biomedical sciences through their hundreds of publications in scientific journals, their participation in professional seminars and conferences, and their myriad consulting services to governmental agencies, research centers, educational institutions, foundations, drug companies, hospitals, and animal food industries.
The annual open house in April, organized and conducted by student members of the American Veterinary Medical Association at the College, proved even more popular than in the past, attracting some 7,500 visitors. Busloads of young people came from all sections of New York State and from New England and Canada. Others came by plane from as far away as Alabama. Among the highlights of the day were films, including one on the birth of a foal, and displays dealing with all aspects of the veterinary medical field. Information on the care, nutrition, and diseases of all domestic animals was also made available. Designed primarily to present an overview of veterinary medicine to the general public, the open house is also an effective means of attracting highly motivated young people to careers in the field. Segments of the public who may not be very familiar with veterinary medicine, including members of some minority groups, have a chance to become aware of opportunities in the profession.
As a leader on the national and international scene, the New York State College of Veterinary Medicine has long contributed to the growth of basic knowledge in all biomedical sciences by pursuing an extensive research program.

The more than 200 different research projects currently under way at the College are united by a single purpose: to gain information that can be applied toward the improved quality of life for all animals and humans. Some of the projects are limited and precise in scope—the attempt to isolate a particular organism, for example. Some are much more broad, and deal with a spectrum of animal health problems such as equine infectious diseases. Frequently, the broader project leads to more precise and specific activities through more clearly defining the problem. Some are aimed at increasing scientific understanding at the most basic levels, such as studies on the method by which certain forms of calcium are absorbed through the wall of the large intestine, information that can lead to practical solutions to health problems. Others have more obvious and immediate applications, such as the production of a vaccine to control a known illness.

A detailed listing of research projects that received new funding during 1974–75 from sources outside the College appears on pages 30–33. The publications by College faculty and staff members during the year (listed on pages 34–42) reflect the breadth and variety of the total program. To obtain a list of current research projects, see Statistical Supplements, page 48.
Instruction

The need for veterinarians—both in private practice and in government and industry—is still pressing. The steadily rising number of applicants for admission to the professional-degree program reflects the interest many young people have in veterinary medical careers, and the high qualifications presented by applicants bodes well for their ability to perform effectively in the field. Likewise, the need for individuals with master’s and doctoral degrees in veterinary medicine is acute throughout the country and, indeed, the world; the numbers of students now in training for advanced degrees is far short of the known demand and nowhere nearly adequate for the projected needs in academic medicine. Of significance to all of society as well as the College community are new procedures instituted during the year to recruit graduate students and attract minority students to veterinary careers as are plans currently under way to expand enrollment in the professional-degree program.
The increased scope of veterinary medicine, including the interface with human medicine; the enlarging body of knowledge; and improved techniques and equipment require a continuing evolution in the teaching programs of the College in order to prepare graduates adequately for the demands of professional life. Students who plan to go on to graduate work need expanded programs to prepare them for the rigors of advanced study; those already in graduate programs need more preparation than ever before in order to undertake careers in research or teaching. In addition, specialized training programs are attracting postdoctoral students to the campus. At the same time, increasing numbers of undergraduates in other academic units at the University are relying on courses taught at the College of Veterinary Medicine to provide the enrichment they need in their academic endeavors.

Each new class or group of students must, in effect, learn more and do more than preceding classes if they are to be as well prepared relative to their colleagues as their predecessors were. And they must acquire the expanded expertise in essentially the same amount of time.

The result is, of course, steady pressure on the student to make the most of the years in school, the hours in class, the
experiences in the clinics, the opportunities for research. Some reorganization of clinical activities promises to increase a student's potential to acquire specialized experiences in the same amount of time. Another innovation designed to provide additional training without extending the number of years spent in study is the combined degree program in which a properly qualified student may pursue the D.V.M. and the M.S. or Ph.D. simultaneously.

The faculty also is faced with the need to fit more material into the same courses and to add courses to the curriculum. The development of fifteen new courses, including eight at the graduate level, and the revision of existing courses, along with the preparation of an impressive array of autotutorial and other supplemental learning aids, accounted for many hours of effort.

Details concerning new courses and programs, admissions and enrollment, and degrees granted may be found in the section that follows.
Reports

Faculty and Staff
Students
New Courses
Facilities and Programs
Physical Plant
Faculty and Staff

The people most crucially involved in the achievements of the College of Veterinary Medicine—the faculty and staff—met the challenge of coping with a larger work load in 1974-75 with somewhat fewer hands and minds to do the job. Longer working hours, sharpened efficiency, and continuing dedication by many were the factors that made it possible for the College to end the year with its usual sense of pride in accomplishment.

Among the many honors received by members of the faculty were a gold medal award from the American Roentgen Society for an exhibit on the pathogenesis of bone remodeling, the Twelfth International Veterinary Congress Prize of the American Veterinary Medical Association, and the Borden Award for distinguished research on the diseases of cattle. The latter was received by Dr. James A. Baker, founder and director of the Veterinary Virus Research Institute, whose death was a loss not only to the College but to all people who shared his abiding interest in the improvement of animal health. Plans are under way to commemorate his outstanding contribution and service by renaming the institute in his honor.

An associate dean for predoctoral programs was appointed during the year; Dr. Robert F. Kahrs of the Department of Microbiology has assumed the duties of that post in addition to his other responsibilities. The two associate deans and the chairmen of the various departments of the College make up the newly designated Advisory Board; they will continue to serve as a vital link between the dean and the faculty at large, facilitating the flow of information in both directions. Regular meetings of this group are proving an asset to administrative procedures.

On the teaching front, most faculty members worked with more students, some took on additional course loads to handle the increased demands, and many were involved in the development of new courses. The sharing of expertise through such procedures as joint appointments of faculty members (in two or more departments of the College and/or other academic units at Cornell), the appearance of guest lecturers from other parts of the University and from off campus, and interdisciplinary research projects is a growing trend that works to increase efficiency and, at the same time, enrich the programs.

Clinical duties for many of the faculty and staff were heavier as the numbers of cases seen continued to rise. The overall pace of research was maintained or stepped up as reflected in the publication of more than 200 articles, books, papers, and reports by members of the College faculty.
Public service activities and extension work, including participation in conferences, giving lectures and demonstrations to groups, making field trips, and answering individual queries and requests for assistance involved all members of the faculty at various times during the year. Lectures and papers delivered to professional groups, consultations with governmental agencies and businesses, and service on committees and boards were some of the ways in which faculty members continued to make contributions on the national and international level. Steps are being taken whenever and however they may to encourage and reward the loyalty and dedication of these people by whose efforts the position of leadership the College has long enjoyed may be retained.

New Appointments

Administrative
Edward C. Melby, Jr., Dean of the College and Professor of Veterinary Medicine

Professorial
Ronald L. Hullinger, Visiting Associate Professor
Alan D. McCauley, Assistant Professor
K. Krishna Murthy, Postdoctoral Fellow
George C. Poppensiek, the James Law Professor in Comparative Medicine
Fritz R. Preuss, Visiting Professor
Ronald C. Riis, Assistant Professor
Danny W. Scott, Assistant Professor
Carl J. Sinderman, Adjunct Professor
Yuichi Yokomizi, Visiting Assistant Professor

Research
Harvey J. Armbrecht, Research Associate
Harold A. Frediani, Senior Research Associate
Marius lanconescu, Visiting Research Associate
Zsuzsanna Wiesenfeld, Research Associate

Retirements
Emeritus
Cyril L. Comar, Professor and Chairman, Department of Physical Biology

Other
Ellsworth Dougherty, Senior Research Associate

Resignations

Professorial
Heinz D. Matheka, Visiting Professor
Fritz R. Preuss, Visiting Professor
Eric L. Reinertson, Assistant Professor
Ingemar Settergren, Visiting Professor
James N. Shively, Associate Professor
Joseph P. Whalen, Visiting Professor
Raymond C. Williams, Visiting Professor

Research
Edgar T. Clemens, Research Associate
Kathleen R. Eickwort, Research Associate
Mason D. Gilbert, Senior Research Associate
Nestor A. Menendez, Visiting Research Associate
Gary D. Ross, Research Associate
Jyi-Teh Wang, Research Associate

Other
Lydden R. Polley, Instructor

Deceased
James A. Baker, Professor and Director, Veterinary Virus Research Institute
Students

Professional-Degree Candidates

Competition for spaces in the professional-degree program at the College of Veterinary Medicine continued to sharpen with increasing numbers of applicants from within the state, from other states, and from outside the country. In the spring of 1975, admissions personnel studied the credentials of more than 1,000 qualified applicants (as opposed to 851 the year before and 659 in 1973) to select the 73 who would be admitted in September 1975. Of those accepted, nearly 80 percent had completed four years of college work, about the same as in the previous year.

An option permitting accepted students to delay entrance in the professional program for one year was offered to newly admitted students for the first time in 1975. The new alternative permits applicants to commit themselves to meaningful pursuits—other study or efforts to achieve a financial base—without risking their chances to attend the College if that opportunity occurs.

Three of the applicants accepted in the spring of 1975 for admission in September 1975 elected to take the delayed-entrance option and will enter the program in September of 1976. The spaces thus made available were filled with alternate applicants.

The percentage of women accepted for entrance continued to show a marked increase. Although the proportion of women applicants has increased, the percentage of those admitted who are women has increased more dramatically. For example, in 1969, women constituted 9 percent of the applicants but only 3 percent of those admitted. In 1975, about 33 percent of the applicants were women but nearly 41 percent of the entering class are from that group.

Lack of applicants representing other minority groups continues to create imbalances. To correct this situation, the dean has appointed a director of minority affairs, and special procedures are being developed to interest a wider range of young people in studying veterinary medicine, to inform them of possible careers in the field, to advise them on ways to prepare for application and admission to the College, and to offer assistance (financial and otherwise) geared to their particular needs.

New York State residents continue to form a majority of those admitted: 58 of the 73 individuals in the class of 1979 (80 percent) are residents while the other 15 (20 percent) are from out of state. Those 15 were selected from nearly 500 out-of-state applicants. It should be noted that most of the out-of-state students were supported financially by the Federal Capitation Grant.

Progress has been made, however, in developing a program whereby additional students from states in the Northeast that have no colleges of veterinary medicine would be admitted to this College. Under this plan, similar to the one already in operation at the University of Pennsylvania, specified numbers of qualified applicants from the various cooperating states would be trained here. Each state would pay a fixed amount per capita, that amount to be determined on the basis of total recovery of cost. The additional revenues would be advantageous to all students and staff at the College and all residents of New York State by allowing for the expansion of College facilities and personnel. The program would also provide increased opportunities for study and learning through the sharing of regional resources including such facilities as
the New England Regional Primate Research Center at Harvard; the Angell Memorial Animal Hospital in Boston; and Johns Hopkins University Medical School.

Graduate-Degree Candidates

Expanded College facilities in terms of space and equipment in the Research Tower make the admission of more graduate students feasible, and this year the College has intensified its search for qualified applicants, especially those with D.V.M. degrees. A 48-page book and companion poster describing the graduate program at Cornell, have been prepared and will be mailed to colleges of veterinary medicine as well as to other institutions with active programs in related areas of biological sciences.

In addition, accelerated programs combining work toward the D.V.M. and the Ph.D. or M.S. degrees have been initiated to encourage graduate study. The programs are concentrated, requiring full-time year-round effort by well-prepared, dedicated students. They offer an annual stipend and waiver of tuition.

It is especially difficult to make advanced study attractive to graduate veterinarians in light of the financial rewards available to them in private practice or other professional careers. Central to all hopes for increasing the enrollment of students in advanced-degree programs is the need for funds to support them while they study and to support their research. All have had seven or more years of postsecondary education, and many have accumulated significant debt loads. This makes it difficult for them to continue on a less-than-subsistence financial basis. Resources to expand and maintain a superior faculty to supervise advanced work are also vital.

Twenty new students were admitted to the graduate Field of Veterinary Medicine and several have enrolled in the combined-degree programs, but overall enrollment at the graduate level has remained about the same as last year. Some forty graduate students are majoring in subjects in the Field of Veterinary Medicine; another dozen, whose majors are in related fields and whose major professors are members of the College of Veterinary Medicine faculty, are doing their graduate work in the College. One hundred fifty-eight graduate students are taking minors in veterinary medical subjects. A little more than half of the graduate students majoring in the field have their D.V.M. degrees, about two-thirds are working toward the Ph.D. (the others are pursuing the M.S.), and about 40 percent are from abroad.

Nonveterinary Students

The role of the College in nonveterinary academic programs at the University has enlarged in recent years. A total of 751 undergraduate students, many of whom were majoring in the Division of Biological Sciences and the Department of Animal Science of the College of Agriculture and Life Sciences enrolled last year in courses in the College of Veterinary Medicine. Of those students, nearly 300 took an introductory course in animal physiology. The combined credit hours provided to undergraduates outside the College was equivalent to 75 full-time students during both semesters. In addition, a few undergraduates from other units at Cornell enrolled as special students in the College; these were generally honor students wishing to do special projects with members of the College faculty.

Degrees Granted

Of the sixty-one students who were awarded D.V.M. degrees in June 1975, seven were graduated with distinction. Eight students completed their work for the Ph.D. during the year, and two received the M.S.

<table>
<thead>
<tr>
<th>Table 1</th>
</tr>
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<tbody>
<tr>
<td><strong>Enrollment Summary, 1974-75</strong></td>
</tr>
<tr>
<td><strong>Candidates for the D.V.M. Degree</strong></td>
</tr>
<tr>
<td>Class of 1975</td>
</tr>
<tr>
<td>Class of 1976</td>
</tr>
<tr>
<td>Class of 1977</td>
</tr>
<tr>
<td>Class of 1978</td>
</tr>
<tr>
<td><strong>Candidates for Graduate Degrees</strong></td>
</tr>
<tr>
<td>Majors</td>
</tr>
<tr>
<td>Minors</td>
</tr>
<tr>
<td><strong>Undergraduates Taking College Courses (Full-Time Equivalency)</strong></td>
</tr>
<tr>
<td>75</td>
</tr>
</tbody>
</table>
New Courses

Seven new graduate-level courses offered in 1974–75 constitute an emphasis in laboratory animal medicine, an important addition to the total graduate program, provided by the Department of Pathology. The other graduate-level course, taught by professors from the Department of Microbiology and the Department of Large Animal Medicine, Obstetrics, and Surgery, presented new work in clinical immunology and immunopathology.

The Department of Large Animal Medicine, Obstetrics, and Surgery offered three new electives for students in the professional-degree program: one dealing with poisonous plants, one with horse-health management, and one on equine locomotion and lameness. A noncredit elective laboratory in the management of foaling, breeding, and care of the stallion and mare was given for the first time. That department also conducted an evening seminar in the spring term on goat management and disease. Instruction on bovine mastitis diagnostic procedures was provided for students in the Department of Animal Science, College of Agriculture and Life Sciences.

Three other elective courses for veterinary students were offered for the first time during 1974–75. One dealing with the diseases of aquatic animals was presented by the Department of Avian Diseases; another, providing an opportunity for students in the professional-degree program or in the graduate program to undertake special projects in pharmacology, was offered by the Department of Physiology, Biochemistry, and Pharmacology; and the third, offered instruction in practical microscopy.

A laboratory was added to the undergraduate course in introductory animal physiology given by the Department of Physical Biology. Laboratories were extensively revised and a syllabus made available for another course in parasitology and symbiology offered by the Department of Pathology to students in several undergraduate units of the University; an additional undergraduate elective in parasitic helminthology is being prepared.

Several courses underwent extensive revisions to enlarge the scope or update material. One of these was a course in neurophysiology now entitled "Applied Electrophysiology" to reflect the emphasis on electroencephalographic and electromyographic techniques in the study of the neural-muscular system. Other revisions included the preparation of autotutorial materials for several required courses in the professional-degree program.

Teaching and learning situations of a nonformal, noncredit nature continued to figure importantly in the overall preparation of students. Demonstrational lectures on the techniques used in work with oncornaviruses, review sessions in pathology, and weekly microbiology seminars were some of the efforts along this line. Organizations such as the Antibody Club (for persons interested in immunology) continued to meet. They provide the opportunity for professional interchange among faculty members and graduate students in a social setting and bring in speakers from other institutions for enrichment of the academic program.

Several faculty members of the College presented lectures as parts of courses offered by other academic units at Cornell.
Teaching Hospital

As part of a continuing effort to coordinate activities and promote efficiency, some reorganization of clinical services was effected during the year. All the clinics and hospitals dealing with large and small animals are now administered as one unit—the teaching hospital—under the guidance of a board of directors. The board consists of the dean and the heads of two of the departments involved: the Department of Large Animal Medicine, Obstetrics, and Surgery and the Department of Small Animal Medicine and Surgery. A director to assume overall administration of the teaching hospital is being sought.

Hospital activities are organized into the following services: surgical, ambulatory (outpatient), clinical pathology, pathology, radiological and physical diagnostic, theriogenology, and medical. The medical service includes several specialty sections—clinical pharmacology, dermatology, gastroenterology, laboratory animal medicine, neurology, and ophthalmology.

Several innovations have made it possible to increase the quality and quantity of diagnostic and treatment procedures available. The Dermatology Section is new and reflects the development of a specialty area, comparative dermatology, begun during the year under the direction of a staff member in the Department of Small Animal Medicine and Surgery. He is now devoting full time to the teaching and clinical diagnosis of dermatological diseases of all species of animals and has also assumed a teaching role in dermatological pathology with graduate students.

New scanning instruments have made it possible to initiate radionuclide imaging techniques as a diagnostic service. The acquisition of a sophisticated instrument for doing blood chemistry profiles has made it possible for the Clinical Pathology Laboratory to handle large numbers of tests on serum samples on a routine basis. Using this particular instrument,
Table 2
Clinical and Diagnostic Accessions, 1974

<table>
<thead>
<tr>
<th>Medical and Surgical</th>
<th>Horses</th>
<th>Cattle</th>
<th>Dogs</th>
<th>Cats</th>
<th>Goats</th>
<th>Swine</th>
<th>Poultry</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Animal Outpatient</td>
<td>1,655</td>
<td>852</td>
<td>11,539</td>
<td>2,875</td>
<td>137</td>
<td>35</td>
<td>187</td>
<td>17,280</td>
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</tr>
<tr>
<td>Clinical Pathology Laboratory</td>
<td>2,371</td>
<td>28,554</td>
<td>16,541</td>
<td>16,091</td>
<td>2,615</td>
<td>707</td>
<td>1,224</td>
<td>1,522</td>
<td>44,595</td>
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<tr>
<td>Parasitology Laboratory</td>
<td>106</td>
<td>194</td>
<td>378</td>
<td>28</td>
<td>67</td>
<td>16</td>
<td>2</td>
<td>107</td>
<td>898</td>
</tr>
<tr>
<td>Diagnostic Laboratory</td>
<td>62,019</td>
<td>18,289</td>
<td>7,256</td>
<td>737</td>
<td>326</td>
<td>286</td>
<td>17</td>
<td>299</td>
<td>89,229</td>
</tr>
<tr>
<td>Radiology Section</td>
<td>948</td>
<td>108</td>
<td>1,812</td>
<td>294</td>
<td></td>
<td></td>
<td>67</td>
<td>3,229</td>
<td></td>
</tr>
<tr>
<td>Necropsy Service</td>
<td>266</td>
<td>1,007</td>
<td>683</td>
<td>305</td>
<td>148</td>
<td>202</td>
<td>305</td>
<td>2,916</td>
<td>184,080</td>
</tr>
<tr>
<td>Mastitis Control Program</td>
<td>15,220</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15,220</td>
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<tr>
<td>Poultry Disease Laboratories</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>142</td>
</tr>
<tr>
<td>Laboratory Animal Diagnostic Laboratory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>142</td>
</tr>
<tr>
<td>Aquatic Animal Diagnostic Laboratory</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>238</td>
</tr>
</tbody>
</table>

| Totals | 75,191 | 249,625 | 37,759 | 6,854 | 1,385 | 1,763 | 15,239 | 2,867 | 390,683 |

A technician can do seventeen different tests on each of sixty serum samples in an hour. Other new equipment gives the laboratory the capacity to do thyroid analyses, serum electrophoresis, and kinetic enzyme analyses.

The team approach to teaching in the clinics is working well. Under this system, each service is staffed by a team consisting of at least one senior faculty member who supervises and directs the other clinicians—one intern, one resident, and two or three students—assigned to that service. Students are rotated so that they spend time on every service and have an opportunity to learn, through observation and participation, the various procedures used, depending on the kind of animal and the kind of medical or surgical problem involved. A new plan has been developed for the upcoming year that will allow each student to pursue an area of interest in more depth during the second half of the senior year by electing to spend blocks of time on services of special interest.

### Diagnostic Laboratory

The staff of the Diagnostic Laboratory continued to handle a large volume of work although seriously restricted in space and personnel. Completion of the new building in the spring of 1976 and the addition of staff and equipment that will then be possible should ease the situation. During 1974–75, the laboratory performed a wide range of tests on nearly 100,000 animal tissue samples (blood, serum, bone, etc.) sent in from veterinarians (private and governmental), public health personnel, and researchers from all over New York State and other states as well. Many of the samples were submitted under the terms of a contract with the New York State Department of Agriculture and Markets and dealt with matters concerning the health of the food-producing animals of the state.

The initiation of data-processing systems for computer storage of laboratory records has increased the ability of the laboratory to handle large numbers of samples accurately and make them available for immediate reference to faculty throughout the College for teaching, research, and diagnostic purposes.

The staff of the Diagnostic Laboratory works closely with the Department of Pathology: much of the necropsy work is a joint effort. Personnel of the Diagnostic Laboratory also assisted in certain relevant pathology courses and served as guest lecturers in other departments. Lectures to college and lay audiences, consulting activities to various governmental and educational agencies, service on committees and boards of the state and the nation, the presentation of papers at professional meetings, and field trips made for
diagnostic and epidemiologic purposes are some of the many additional services performed by the staff.

Diagnostic Laboratory personnel, often in collaboration with faculty members of other departments of the College, pursued research on a broad range of projects involving techniques and procedures to aid in determining the causes, diagnoses, and treatment of such diseases and malfunctions as bovine abortion, calf pneumonia, feline respiratory diseases, canine distemper, equine infectious anemia, and others.

**Laboratory Animal Medicine**

The responsibility for increased numbers of laboratory animals in a widening network of locations on campus and the expansion of services beyond the College of Veterinary Medicine characterize the activities of the Division of Laboratory Animal Medicine and Services in 1974–75. Strict compliance with the many state and federal regulations as well as the high standards of the College was maintained in the purchase and care of thousands of laboratory animals needed in the teaching and research programs of the College as well as in all departments of the University (such as the Division of Nutritional Sciences, the Department of Ornithology, the Division of Biological Sciences, and the Department of Psychology) where research involving such animals occurs. In addition, the staff of the division provided expertise and consultation on laboratory-animal problems to other institutions in the SUNY system.

Funds from a National Institutes of Health grant, earmarked for facilities, were used to purchase needed equipment such as pens to improve animal comfort and special cages for gnotobiotic animals held in the thirty-one rooms of the centralized facility in the Research Tower. Additional funds in the form of a new, three-year grant from NIH will help ensure the high quality of the animals needed for research and teaching by providing for better diagnosis and control of disease in the colonies.

**Table 3**

<table>
<thead>
<tr>
<th>Laboratory Animals Housed and Cared for during 1974–75 by the Division of Laboratory Animal Medicine and Services</th>
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<tbody>
<tr>
<td>Calves</td>
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<tr>
<td>4</td>
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<tr>
<td>Total</td>
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</tbody>
</table>

**Computing Facility**

Since the veterinary college computers were moved into the Research Tower in January of 1974, the work load handled by them has grown with dramatic speed. The facility consists of two computers—a PDP-15 that is used for research data, and a PDP 11/45 that handles medical records for the College. The original staff of three has been increased to seven with plans for additional programmers to be added as more of the clinics and laboratories are put on the system. A total of twenty-two terminals in various locations of the College are now feeding information into the records computer.

All cases seen in the small- and large-animal clinics are recorded; information fed in includes sociological data (name, breed, sex, etc. of the animal, along with the owner’s name, address, date of visit, referring veterinarian if any, and other key information) and a summary of the relevant diagnoses and medical procedures. The system is designed to be simple to use—a person with no previous training can be taught to use it in a matter of minutes—and extremely versatile both in terms of storing data and retrieving it. The number of cases seen in a certain day or week or month; all cases involving a certain organ or physiologic system; all surgical procedures in a given time or of a given kind; the number of animals of a particular species or age or sex treated; complete history of the visits of one particular animal and the procedures and results involved; and scores of hospital statistics are but a few of the dozens of kinds of information the computer will print out on demand within minutes or parts of minutes.
In addition to the medical records of the main clinics, data from the Diagnostic Laboratory and the mastitis program are now on the computer, and work is under way to get all ancillary clinics—radiology, clinical pathology, necropsy, and pathology—on in the near future. Other programs will be added as soon as possible.

The quantity of material handled is awesome especially considering the small amount of space required. All the computer machinery and storage disks are housed in one modest-sized room. A single storage disk package no larger than a portable record player is capable of holding five years' records for both the small- and large-animal clinics.

The computers do not replace the paper records but make them vastly more accessible for clinical work and for research as well as saving enormous numbers of man hours in searching for information. The potential for improved teaching procedures, enlarged research projects, and better use of clinical information for treatment of animals is beyond measure. To the best of our knowledge, this is the most advanced system in use in any veterinary medical institution in the world.

Library

The Flower Veterinary Library faces an increasingly critical situation in which needs and use steadily increase while the potential for expansion decreases. New courses added to the curriculum, increased numbers of students in the professional program as well as at the graduate level, and changing and widening research and extension activities all create a press for enlarged library capabilities. At the same time, space and budgetary pressures are increasingly restrictive forces.

Library use in terms of book and periodical circulation was up about 25 percent in 1974, and items borrowed from other libraries outside of the Cornell system for use at the College increased also. Although total resources grew during 1974 through purchases of volumes and periodicals, gifts, and transfers of materials in the neurosciences from Olin Library on the lower campus, the rate of growth was slowed. With the total holdings of books at the 58,000 mark and the maximum capacity of the library at 60,000 the staff was forced to remove some 1,500 items from the shelves.

Tables 4 and 5 summarize library operations for the calendar year 1974.

Biomedical Communications

A new technique for making color internegatives from existing color slides, an elective course in microscopy, and many thousands of slides, prints, and illustrations stand as testimony to the ability and effort of the staff in Biomedical Communications during the first year of its operation. The new technique, now a routine procedure, ensures the preservation of existing documentation while providing a quick, efficient way to reproduce the original material in either color or black and white. The course in microscopy presented by the director of Biomedical Communications is offered to all students in the College.
Exciting new developments in teaching methodology and a greatly strengthened autotutorial program have been made possible through the purchase of color monitors and new equipment for recording and playing back color videotapes and through the steady production of slide and tape programs for use with the equipment. Included in the library is a set of four hundred color slides of the dissection of the horse prepared by the medical illustrator in Biomedical Communications in conjunction with a professor in the Department of Anatomy. These slides, fully labeled and supplemented by slides of sixty radiographs, constitute one set of review and study material available to students. Table 6 summarizes the production of Biomedical Communications in its first year of operation.

### Biomedical Electronics

Plans have been under way during the year to expand the services of the shop in the Department of Physical Biology so that it will be able to handle the maintenance and repair of all biomedical electronic equipment throughout the College. Autoclaves, microscopes, gas chromatographs, and liquid scintillation counters are some of the hundreds of pieces of sophisticated equipment used in teaching, research, and clinical activities in veterinary medicine. Having technicians on the premises to keep these vital tools running smoothly and without interruption will mean an impressive saving in time and money and will contribute to efficiency at all levels of work. In addition to maintenance and repair work, the service will develop new apparatus by modifying existing equipment or devising new items to perform special functions. The two full-time electronics technicians and the supervising design engineers in the service also act as consultants in the purchase of equipment.

### Feline Laboratory

During the first full year since the establishment of the Cornell Feline Research Laboratory, significant effort and progress has been made in all three areas of activity as defined in the laboratory’s goals: to promote and conduct research on diseases of the domestic cat in order to prevent or cure those diseases, to provide continuing education on feline diseases to practitioners and cat owners, and to aid practitioners when new or unknown diseases occur in their cat patients.

Investigations continued on respiratory viruses including the evaluation of a new commercial vaccine and an experimental vaccine, the classification of various strains of calciviruses, and the determination of the basic parameters of pneumonitis. Several studies currently under way deal with the various manifestations of the leukemia virus in cats, the interrelationships between intestinal bacteria and panleukopenia virus, urolithiasis, feline infectious peritonitis, and three previously unrecognized neurological diseases of cats.

A cooperative study with staff members of the Animal Medical Center in New York City revealed the importance of heart disease in cats.

Direct assistance was rendered practitioners when an outbreak of severe gastroenteritis in a small animal hospital was investigated. It was determined that the outbreak was caused by *Salmonella typhimurium*, particularly significant in light of the fact that, previously, salmonellosis was not considered a serious infection in cats. Salmonellosis is considered by public health officials as one of the most important bacterial infections.

Two new programs begun this year deal with the presence of heavy metals in cat foods and the role of infectious diseases on reproductive ailments of cats. New work will also be directed toward evaluating the effectiveness of antiviral compounds against the respiratory viral diseases of cats; this work is part of a broad national effort to develop antiviral drugs that will be effective in curing or preventing viral diseases in humans as well.

Of considerable importance for research efforts of the laboratory now and in the future is the computer storage and resultant accessibility of data from the feline hospital patients at the College.

Several new governmental and industrial grants have been received to fund specific projects. The support from individuals and groups has also been gratifying. Since its beginning less than a year and a half ago, the
laboratory has received contributions from thirty individuals, a dozen cat clubs and societies, nearly eighty veterinarians, three veterinary medical associations, ten veterinary hospitals and clinics, and three foundations and corporations. More than forty of these individuals and groups constitute the Founders, by virtue of having made donations or pledges in excess of $500 each.

**Virus Research Institute**

Preventing the loss of animals from infectious diseases remains the basic aim of work done by the Veterinary Virus Research Institute and the Cornell Research Laboratory for Diseases of Dogs. Faculty members of the College associated with the Institute directed some twenty projects dealing with infectious diseases of dogs. Others that focused on canine health problems involved nutritional studies and work in degenerative joint diseases. Nearly a dozen research efforts were directed toward understanding, treating, and controlling infectious diseases of cattle, sheep, and rabbits.

Graduate students (most of them majoring in microbiology in the Field of Veterinary Medicine but some in such fields as nutrition and chemistry) contributed importantly to these research projects and also assisted in the presentation of various courses to professional-degree candidates and undergraduates.

Generous support for Institute programs continued to come from foundations, corporations, veterinarians, dog clubs, and private individuals.

**Avian and Aquatic Programs**

Efforts at controlling diseases of poultry through laboratories and clinics on campus and throughout the state as well as through continuing research in the health problems of these animals resulted in several significant advances. Good progress was made toward developing facilities and procedures at the Duck Disease Research Laboratory in Eastport, New York, that will allow production of four important biologics that will meet federal regulations for interstate shipment. More than 3 million doses of biologics were dispensed from that laboratory during the year.

Studies aimed at understanding and controlling diseases of aquatic animals are of increasing significance in light of the demand for these animals as sources of food for human consumption and the subsequent growth of the fin-fish and shellfish industries. A Sea Grant was received during 1974–75 to support three years of research on viruses of shellfish.

The Department of Avian Diseases is being renamed the Department of Avian and Aquatic Animal Medicine to reflect its expanded activities in the field of aquatic animal studies and services.

**Equine Programs**

The most significant recent development for the various equine programs of the College has been the creation of the Equine Research Park. Although the Park is far from complete, all the equine programs are currently active there. The coordination of animal-care facilities and the sharing of costs makes it possible for all the equine programs to gain the maximum benefit from available funds and personnel resources. Some of the ninety animals housed at the Park are shared, with tests being made concurrently where there is no contradiction of results involved, or alternately in cases where that procedure is indicated.

The Research Laboratory for Equine Infectious Diseases was established in 1970 to determine the cause, prevention, and control of important infectious diseases of horses and remains committed to that pursuit. Isolation units are required for this work (there are thirty-eight), and plans call for the establishment of a band of specific-pathogen-free horses at the Park. Land is available and will be developed as funds are secured.

The Equine Research Program is involved primarily with problems relating to nutrition and bone and joint diseases of horses. Much of the work done under this program is multidisciplinary, involving collaboration between faculty members from various departments of the College and from other academic units such as the College of Engineering and the Division of Nutritional Sciences. Plans are under way to initiate, during the next year, a project on equine ataxia, a neurological disorder of horses that is causing increasing concern throughout the country.
Fifteen mares and two stallions constitute the current group of animals maintained at the Park for studies of equine reproductive problems; this band is also valuable in training veterinary students. When the facilities are completed at the Equine Research Park, the band can be expanded to include twenty-five College-owned mares with barn space for visiting mares as well.

The Equine Drug Testing and Research Program was expanded during the year to include testing of thoroughbreds. This brought the total number of New York State tracks serviced by the program to seven. Some 60,000 samples were handled by the field laboratories on an at-cost basis. Information gathered from this service provides valuable resource material for the broad program of research in equine pharmacology. The potential for on-campus research has increased with the addition of the half-mile track at the Equine Research Park.

**Comparative Gastroenterology**

The training program in comparative gastroenterology, sponsored by the National Institutes of Health, completed its fourth year. A multidisciplinary postdoctoral program in the clinical problems and functional mechanisms of the digestive system of various species, it involves faculty members from seven departments of the College as well as some from other academic units at Cornell.

Five trainees have been awarded certificates of completion, and four others have completed the course work and have their research projects under way. During the past four years, twenty manuscripts have been published by members of the program; about a dozen more are in preparation.

Seven of the trainees admitted so far have elected to incorporate their work in comparative gastroenterology in a broader program leading to a Ph.D. or M.S. degree.

**Clinical Nutrition**

Since 1972, when the Clinical Nutrition Program was founded with the establishment of the Mark L. Morris Professorship of Clinical Nutrition, significant gains have been made both in terms of basic research and the application of expertise in the field. This professorship was made possible through the generosity of the family of Dr. Mark L. Morris, Sr., a distinguished alumnus of this college and a leader in the field of veterinary clinical nutrition. Two graduate students initiated research projects in clinical nutrition in 1974-75: one is working on problems of protein metabolism in neonatal calves, the other deals with energy metabolism in dogs. These specific projects augment the research conducted in those and related areas by the professor of clinical nutrition and other members of the faculty.

In addition to research and courses offered by members of the clinical nutrition team, their consulting activities have expanded both on the campus and off. Staff in the several clinics of the teaching hospital call on them frequently for assistance in diagnosis and procedures to handle nutrition-related disease problems, and practitioners in the field are given help and advice in dealing with problems related to nutrition.

**Theriogenology**

Two sections, administered by the Department of Large Animal Medicine, Obstetrics, and Surgery, have been consolidated into one: reproductive studies and clinical obstetrics were combined to form the Division of Theriogenology. The College has a long history of outstanding work in the field of reproductive diseases of domestic animals. Recent work, especially, has highlighted the importance of this research in terms of human medicine as well as in efforts to increase the world's drastically short protein supplies by improving the reproductive efficiency of animals. Unfortunately, progress, at Cornell and elsewhere, has been seriously hampered by the lack of a comprehensive, centralized source of materials dealing with reproductive pathology in animals. Such a gap could be filled by the creation of a Registry of Comparative Reproductive Pathology; the College of Veterinary Medicine is the logical place to establish such a registry partly because the largest collection in the world now exists there, and partly because plans have already been developed by professors at the College to implement such a program. It remains, however, in the planning stage because funds to support the plan have not been secured.

**Mastitis Program**

Efforts to deal with the problem of mastitis, often considered the prime threat to the state's dairy industry, were focused on implementing known procedures for control and also on further research aimed at improving understanding of the disease and developing new techniques for control. Tests were performed on some 184,000 cattle at the four diagnostic laboratories operated by the College (at Canton, Earlville, Kingston, and Ithaca). The dissemination of mastitis information was multifaceted: papers were presented by the staff to scientific meetings at the state, regional, and national levels; workshops and conferences were held on campus; and circulation of the newsletter, *Mastitis Quarterly*, was expanded to 350.
The most obvious change in the appearance of the campus during the year was construction on the new building for the Diagnostic Laboratory. The contract for the structure was awarded in the spring of 1974; actual construction began in March of 1975. The major portion of the building is in the form of a new two-story wing connected to Schurman Hall.

The new facility is related both functionally and physically to the adjacent structures and will provide an additional 22,000 square feet of space for equipment and personnel of the laboratory. Completion is scheduled for June 1976 at a cost of about $1.5 million.

Other changes in on-campus facilities during the year were less obvious; they included the development of a centralized records room with a movable shelving system that is expected to hold 55,000 medical records. These records (for both small and large animal clinics) stored in a central place equipped with computer terminals and space for clinicians to study the material, constitute a significant resource for clinical activity, teaching, and research. A former ward of the Small Animal Clinic was remodeled to provide two new examining rooms, needed to accommodate the increased case load and additional students involved in clinical activities. The anatomy section of "O" barn was remodeled as a dissection laboratory and is now used to present a graduate course.

Several significant pieces of equipment were added during the year. A computer-controlled automated instrument for doing blood chemistry profiles was acquired by the Clinical Pathology Laboratory as were other instruments that add to the laboratory's diagnostic capabilities. Two scanning instruments were donated to the Department of Physical Biology by the Upstate Medical Center.

Development of the Equine Research Park on the site of the former Warren Farm a few miles from campus progressed well during the year. Existing buildings were renovated to make them suitable for horses and ponies (dairy cattle had formerly been kept there). Twenty-two box stalls and 40 tie-type pony stalls in the main barn, 25 box stalls for ponies in two smaller barns, and 8 box stalls for horses in another structure have been completed, making it possible to house some 90 horses and ponies adequately. Some land improvement such as fencing and brush clearing has been done, and a one-half-mile track, constructed with funds from the New York State Council of Harness Tracks, is nearly complete. A master plan has been drawn up and divided into phases so that, as funds become available, work can progress toward completion of the facility.
Records

Newly Funded Research
Publications
Financial Statements
Administrators and Advisers
Statistical Supplements
The processes by which research projects are begun, continued, and completed are varied, but depend, largely and inevitably, on the funds that are available. Some projects are begun, and, indeed, some are completed, with funds from departmental budgets. In order to finance many of the more ambitious and far-reaching programs, however, grants must be sought from agencies outside the College. Grants nearly always are earmarked for a defined project to be carried out within a specified time period, and renewal of the grant within that time period is, of course, dependent upon the progress made. If a grant terminates before the project is completed, funds must be sought from elsewhere in order to continue the work. Obtaining a new grant, therefore, does not necessarily mean that a new project is begun; the new funds may allow additional or expanded work to be undertaken or may provide the needed money to follow through on a promising study.

Following are brief descriptions of some of the major research activities that received new funding from sources outside the College during the year 1974–75.

**Bacterial Diseases**

*Source of funds:* Dextra Baldwin McGonagle Foundation, Incorporated  
*Amount of grant:* $5,000/one year  
*Principal investigator:* John F. Timoney, Assistant Professor of Veterinary Bacteriology, Department of Microbiology  
*Purpose and goals:* To investigate the role of immune phenomena in the pathogenesis of erysipelas arthritis in swine and to study the stability and segregation of antibiotic resistance factors in *Salmonella typhimurium*.

**Bovine Virus Tests**

*Source of funds:* Eastern Artificial Insemination Cooperative  
*Amount of grant:* $22,721/fifteen months  
*Principal investigator:* Robert F. Kahrs, Associate Professor of Veterinary Epidemiology, Department of Microbiology  
*Purpose and goals:* To test 3,000 semen samples for the presence of infectious bovine rhinotracheitis and other viruses; to find improved methods of detecting viral contamination in semen; and to devise methods for control of viral infections in studs used for artificial insemination.

**Cancer Virology**

*Source of funds:* Duke University  
*Amount of grant:* $47,400/one year  
*Principal investigator:* Fernando de Noronha, Professor of Veterinary Virology, Department of Pathology  
*Purpose and goals:* To study the immunology of virus-induced leukemia, especially the immunizing or protective factors that are transferable between species; also, to test whether antisera prepared from mouse leukemia viruses will protect kittens that have been inoculated with feline leukemia virus, and, conversely, whether feline leukemia virus antisera will protect mice from developing leukemia.

**Clinical Drug Evaluations**

*Source of funds:* Schering Corporation  
*Amount of grant:* $9,000/one year  
*Principal investigator:* George A. Maylin, Associate Professor of Toxicology, Diagnostic Laboratory, and Director, Equine Drug Testing and Research Program  
*Purpose and goals:* To evaluate the efficacy of Schering 14714 in the treatment of equine arthritis and Naquasone as an equine diuretic.
Comparative Studies of Large Intestinal Function

Source of funds: National Institutes of Health
Amount of grant: $101,675/four years
Principal investigator: Charles E. Stevens, Professor of Veterinary Physiology and Chairman, Department of Physiology, Biochemistry, and Pharmacology
Purpose and goals: To examine the general characteristics of digesta passage, the production and absorption of volatile fatty acids, and the utilization of nitrogen in the large intestine of a variety of species, and to determine the mechanisms of, and interrelationships between, the transport of inorganic ions, volatile fatty acids, and water.

Comparative Virology: A Study of Viral Flora in Shellfish and Their Importance as Pathogens

Source of funds: Federal Sea Grant Program
Amount of grant: $9,774/three years
Principal investigator: James H. Gillespie, Professor of Veterinary Microbiology and Chairman, Department of Microbiology
Purpose and goals: To determine the viral flora of shellfish used as human food with principal emphasis on shellfish diseases of possible viral etiology with a view to the control and prevention of those diseases.

Control of Food Intake: Glucostatic and Gastrointestinal Factors

Source of funds: National Institutes of Health
Amount of Grant: $70,773/three years
Principal investigator: T. Richard Houpt, Professor of Veterinary Physiology, Department of Physiology, Biochemistry, and Pharmacology
Purpose and goals: To study and compare food intake controls in the adult and newborn pig and use that information in combination with what has been found out about food intake control in other species to further our understanding of the regulation of body energy content, with results that may also be applicable to human problems of food intake.

Diseases of Shellfish

Source of funds: Federal Sea Grant Program
Amount of grant: $9,850/one year
Principal investigator: Louis Leibovitz, Associate Professor of Avian Diseases, Department of Avian Diseases
Purpose and goals: To continue the in-progress studies of diagnostic methods and pathogenesis of shellfish diseases; to assess the practical value of procedures developed; and to expand and refine these studies to include the hard clam industry of the Great South Bay of Long Island.

The Disposition of 14C Reserpine in Horses

Source of funds: American Horse Shows Association
Amount of grant: $20,000/one year
Principal investigator: George A. Maylin, Associate Professor of Toxicology, Diagnostic Laboratory, and Director, Equine Drug Testing and Research Program
Purpose and goals: To determine the processes by which horses' bodies dispose of the drug reserpine in order to lay the groundwork for development of an analytical test for the (illegal) presence of this drug in horses.
Equine Drug Research: General
*Source of funds:* Racing Research Fund, Incorporated  
*Amount of grant:* $9,578/one year  
*Principal investigator:* George A. Maylin, Associate Professor of Toxicology, Diagnostic Laboratory, and Director, Equine Drug Testing and Research Program  
*Purpose and goals:* To improve drug testing in race horses through studying the use of drugs in horses and applying the resultant findings to actual testing procedures.

Equine Drug Research: Standardbreds
*Source of funds:* New York State Council of Harness Tracks  
*Amount of grant:* $414,000/three years  
*Principal investigator:* George A. Maylin, Associate Professor of Toxicology, Diagnostic Laboratory, and Director, Equine Drug Testing and Research Program  
*Purpose and goals:* To study the use of drugs in horses and apply the resultant findings to actual testing procedures in order to improve equine drug testing.

Equine Drug Research: Thoroughbreds
*Source of funds:* New York State Racing Association  
*Amount of grant:* $150,000/three years  
*Principal investigator:* George A. Maylin, Associate Professor of Toxicology, Diagnostic Laboratory, and Director, Equine Drug Testing and Research Program  
*Purpose and goals:* To improve drug testing in race horses through studying the use of drugs in horses and applying the resultant findings to actual testing procedures.

Equine Infectious Diseases
*Sources of funds:* United States Trotting Association and New York State Racing Association  
*Amount of grants:* $50,000 and $5,000 (respectively) / one year  
*Principal investigator:* Leroy Coggins, Professor of Veterinary Virology, Department of Pathology, and Director, Research Laboratory for Equine Infectious Diseases  
*Purpose and goals:* To continue in-progress work on equine infectious anemia (such as monitoring performance of the diagnostic test) and on respiratory diseases of horses (such as rhinopneumonitis, rhinovirus, adenovirus, and arteritis), and to initiate new work aimed at better understanding and controlling these diseases.

Evaluation of Vaccine for Infectious Bovine Rhinotracheitis
*Source of funds:* Pitman-Moore, Incorporated  
*Amount of grant:* $7,000/nine months  
*Principal investigator:* Robert F. Kahrs, Associate Professor of Veterinary Epidemiology, Department of Microbiology  
*Purpose and goals:* To evaluate a new infectious bovine rhinotracheitis vaccine for intranasal administration to cattle and to attempt to determine the safety of the vaccine for pregnant cattle.

Feline Pneumonitis
*Sources of funds:* Pitman-Moore, Incorporated, and Fromm Laboratories  
*Amount of grants:* $7,400 and $1,000 (respectively) / one year  
*Principal investigator:* Fredric W. Scott, Associate Professor of Veterinary Microbiology, and Director, Cornell Feline Research Laboratory  
*Purpose and goals:* To study feline pneumonitis and the chlamydial agent causing this disease.
Feline Respiratory Diseases
Source of funds: National Institutes of Health
Amount of grant: $289,847/three years
Principal investigator: Fredric W. Scott, Associate Professor of Veterinary Microbiology, and Director, Cornell Feline Research Laboratory
Purpose and goals: To establish and maintain an animal-virus disease model, which closely mimics a disease state in man, for the rapid evaluation (for prophylaxis, therapy, and toxicity) of antiviral compounds.

Intestinal Calcium Absorptive Mechanism
Source of funds: National Institutes of Health (Development Award of the Research Career Program)
Amount of grant: $100,000/five years
Principal investigator: Robert A. Corradino, Senior Research Associate, Department of Physical Biology
Purpose and goals: To increase understanding of the vitamin D-mediated intestinal calcium absorptive mechanism, using a novel organ culture technique developed by the investigator, and to determine the feasibility of using this system for the study of other aspects of intestinal physiology.

Laboratory Animal Diagnostic Resource
Source of funds: National Institutes of Health
Amount of grant: $202,990/three years
Principal investigator: Edwin J. Andrews, Associate Professor of Laboratory Animal Medicine, Department of Pathology
Purpose and goals: To establish a resource for the College, the campus, and the region to allow for the rapid diagnosis and control of diseases of laboratory animals and to institute programs for improving the quality of research animals.

Relationship of Mechanical Factors to Disorders of the Locomotor System
Source of funds: National Science Foundation
Amount of grant: $60,000/three years
Principal investigators: Herbert F. Schryver, Associate Professor of Pathology, Department of Large Animal Medicine, Obstetrics, and Surgery, and Director, Equine Research Program
Donald L. Bartel, Associate Professor of Engineering, (Cornell) Sibley School of Mechanical and Aerospace Engineering
Purpose and goals: To relate the development and progression of disorders of the locomotor system to the mechanics of the system, using the digit of the horse as an experimental model because of the similarity between disorders occurring in humans (such as degenerative joint disease, tendonitis, fractures, etc.) and those of horses.

Relationship of Regeneration, Oncogenesis, and Immunity
Source of funds: National Institutes of Health
Amount of grant: $75,000/three years
Principal investigator: Edwin J. Andrews, Associate Professor of Laboratory Animal Medicine, Department of Pathology
Purpose and goals: To test an offered hypothesis to the effect that immunostimulation of tumors in vertebrates is an evolutionary remnant of a more primitive process seen in invertebrates.

Veterinary Adverse Drug Reaction Program
Source of funds: Food and Drug Administration
Amount of grant: $3,000/one year
Principal investigator: Robert H. Whitlock, Assistant Professor of Large Animal Medicine, Department of Large Animal Medicine, Obstetrics, and Surgery
Purpose and goals: To investigate, evaluate, and report on adverse reactions and adverse experiences by veterinary patients to various animal drugs.
Publications

Following is a list of the scientific and technical articles, books, and parts of books published in 1974–75 by members of the College faculty and staff. The publications generally constitute reports on research projects under way and are grouped into the six categories used at the College to reflect major areas of veterinary medical research. Brief descriptions of the categories precede the lists of relevant publications. A person interested in obtaining a reprint should communicate with the senior author (the first name listed) of the publication in question. Letters may be addressed to the individual at the New York State College of Veterinary Medicine, Cornell University, Ithaca, New York 14853.

Structural and Functional Systems

Basic to understanding or treating disease is an understanding of the structure and function of cells, organs, and entire animals and the processes by which they develop and grow. Specifically, studies are focused on the various physiologic systems, such as gastrointestinal, nervous, urogenital, circulatory, and immune. There is also a need to determine the structure, function, and biochemistry of a variety of bacteria, viruses, and other organisms that parasitize animals and humans. The physiologic, immunologic, and behavioral responses of animals to infections, various drugs, and other stimuli are also of concern to researchers in this general area.


Causes and Manifestations of Disease

Among research projects aimed at determining the causes and effects of animal and human diseases are studies on allergic, immunologic, parasitic, and infectious diseases and on the effects various agents have on developing fetuses. Other investigations are focused on the causes of chronic and degenerative diseases, cancer, nutritional diseases, and the causes of reproductive failure.


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Epidemiology and Ecology of Diseases

The incidence, distribution, and economic significance of losses from animal diseases and their effect on humans needs to be determined. Studies of this kind often include the surveillance of clinic and laboratory admissions and the observation of the interactions of environment and genetics on host-parasite relationships. Investigations into the human health implications of various animal diseases is also an important element of this area.


Treatment of Disease

The development of new treatments and the evaluation of old procedures are constant components of the applied clinical research programs. Clinical, radiographic, and surgical procedures come under scrutiny in the effort to improve the means of dealing with infectious, digestive, respiratory, and neoplastic diseases of all species of animals. Work involving the development and evaluation of vaccines and other preventive measures is also included in this category.


Poisons and Pollutants

An expanding part of the research program is the effort to assess the effects of toxic chemicals, toxic plants, and radioactive substances on human and animal health. Such substances may be present in meat, milk, or other foods of animal origin or may constitute hazardous contaminants of the environment.


Sources and pathways of lead in domestic animals. Air Pollution Control Association Abstracts 68:90.


Research Resource Development

Research programs require such resources as computer facilities, scientific equipment, laboratory renovation, and administrative support. Some of these activities are basic to a broad range of research projects in several fields, and also permit the evolution of new research areas.


The College Dollar

Where It Came From

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<td>College Income</td>
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Where It Went

<table>
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<th>Destination</th>
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</tr>
<tr>
<td>Organized Educational Activities-Teaching Hospital</td>
<td>14.3%</td>
</tr>
<tr>
<td>Organized Research</td>
<td>38.0%</td>
</tr>
<tr>
<td>Extension and Public Service</td>
<td>14.1%</td>
</tr>
<tr>
<td>Library</td>
<td>1.5%</td>
</tr>
<tr>
<td>Student Services</td>
<td>0.4%</td>
</tr>
<tr>
<td>Plant Operation and Maintenance</td>
<td>0.9%</td>
</tr>
<tr>
<td>General Administration</td>
<td>4.0%</td>
</tr>
<tr>
<td>Staff Benefits</td>
<td>0.4%</td>
</tr>
<tr>
<td>General Institutional Expense</td>
<td>4.2%</td>
</tr>
<tr>
<td>Student Aid</td>
<td>0.3%</td>
</tr>
</tbody>
</table>
### Table 7
Source of Funds

<table>
<thead>
<tr>
<th>Source of Funds</th>
<th>1974–75</th>
<th>1973–74</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Appropriation</td>
<td>$4,767,515</td>
<td>$4,662,148</td>
</tr>
<tr>
<td>Federal Appropriation</td>
<td>40,193</td>
<td>37,520</td>
</tr>
<tr>
<td>Grants and Contracts</td>
<td>2,137,997</td>
<td>2,163,151</td>
</tr>
<tr>
<td>College Income</td>
<td>2,067,929</td>
<td>1,760,357</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>9,013,634</td>
<td>8,623,176</td>
</tr>
</tbody>
</table>

### Table 8
Use of Funds

<table>
<thead>
<tr>
<th>Use of Funds</th>
<th>1974–75</th>
<th>1973–74</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruction and Departmental Research</td>
<td>$1,976,202</td>
<td>$1,745,928</td>
</tr>
<tr>
<td>Organized Educational Activities— Teaching Hospital</td>
<td>1,291,410</td>
<td>1,171,829</td>
</tr>
<tr>
<td>Organized Research</td>
<td>3,422,334</td>
<td>3,666,448</td>
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<tr>
<td>Extension and Public Service</td>
<td>1,268,830</td>
<td>1,085,663</td>
</tr>
<tr>
<td>Library</td>
<td>130,581</td>
<td>134,087</td>
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<tr>
<td>Student Services</td>
<td>32,271</td>
<td>30,630</td>
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<tr>
<td>Plant Operation and Maintenance</td>
<td>83,881</td>
<td>70,097</td>
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<tr>
<td>General Administration</td>
<td>364,457</td>
<td>341,757</td>
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<tr>
<td>Staff Benefits</td>
<td>33,585</td>
<td>34,995</td>
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<tr>
<td>General Institutional Expense</td>
<td>380,115</td>
<td>316,809</td>
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<tr>
<td>Student Aid</td>
<td>29,968</td>
<td>24,933</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>9,013,634</td>
<td>8,623,176</td>
</tr>
</tbody>
</table>

Tables 7 and 8 are summaries of the income and expenditures of the College of Veterinary Medicine for the fiscal years from July 1, 1973, through June 30, 1974, and from July 1, 1974, through June 30, 1975.
Cornell University

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*Ex officio
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New York State College of Veterinary Medicine

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Detailed statistical material relating to various College programs is available and will be sent upon request. A person wishing to receive any of the following should specify the document(s) desired, enclose a check or money order for $1.00 to cover postage and handling, and be sure to include a complete return address with zip code. Such requests should be sent to Annual Report Statistical Supplements C-114 College of Veterinary Medicine Cornell University Ithaca, New York 14853.

The following reports, compiled on the basis of the calendar year, are available for 1974:
- Report of the Surgical and Consulting Clinic (large animal)
- Report of the Ambulatory Clinic (large animal)
- Report of the Small Animal Clinic
- Report of the Clinical Pathology Laboratory
- Report of the Radiology Section
- Report of Necropsies
- Report of Parasitological Examinations
- Report of Laboratory Animal Diagnoses
- Report of the Diagnostic Laboratory
- New York State Mastitis Control Program
- Poultry Disease Diagnostic Laboratories

The following are available for the academic year 1974–75:
- List of Research Projects
- Student Enrollment Tables
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Manuscript by Nita Jager

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