

NEW YORK STATE
VETERINARY COLLEGE

*A Statutory College of
The State University*

at

CORNELL UNIVERSITY
ITHACA, N.Y.



The familiar library slope, overlooking the men's dormitories.

Christmas, 1970

Bear Cornellian,

Haig and Regina Shekerjian published *A Book of Christmas Carols* in which they traced the origin of the *carol*, pointing out that the phrase first appears in print in the sixteenth century in small books from the presses of Wynkyn de Worde and Richard Kele in England.

But the birthplace of the true *Christmas carol* is in Italy where, in the thirteenth century, Saint Francis lifted religion out of its esoteric Latin cloister and made of it something warm and human; a part of, rather than separated from, life.

Here, in the thirteenth century, in the poems of another inspired Franciscan, Jacopone da Todi, comes the first real outburst of Christmas joy in a popular tongue. From Italy the carol then spread quickly to all those countries where Christianity existed.

Although the word *carol* originally meant ring dance and did not necessarily apply to Christmas, during the fifteenth century it gradually came to mean *song*, not necessarily accompanied by dancing. Before 1550, the *carol* was defined by a definite form — a group of uniform stanzas with a burden which begins the song and is repeated after each

stanza. Today the word carol is synonymous for most people with any song relating to Christmas.

Until one remembers that the Puritan distrusted and therefore heartily disliked and sternly disapproved any celebration of Christmas, it is difficult to believe that it was not until the nineteenth century that Christmas became a popular holiday in America. Did you know that in New England Christmas was outlawed until the second half of the last century? Until 1856, December 25th was a common workday in Boston, and as late as 1870 (just 100 years ago), classes were held in the public schools there on Christmas Day.

It was the coming of the Irish and the Germans toward the middle of the nineteenth century, followed by the Swedes, the Italians, the Poles and other central Europeans that gave Christmas a chance to flower in this country.

The beauty of Christmas, in the words of William Wallace Rose, *lies in its simplicity*. And the carols attest to that. Let me give you Rose's words:

"The Song of Peace was first heard by simple shepherds tending their flocks.

"The Star of Promise was first seen by the Magi, men renowned for their humility as well as great learning.

"The Child was born to a gentle Syrian maid, and cradled in the manger of a stable.

"Sinister influences in high places sought to slay the Child, but were foiled by a simple stratagem: The Wise Men, told to report where the young child lay, returned to their own country by a different way.

"And so that ageless story of old by-passed the great centers of culture to honor an obscure town; ignored the pomp of palaces to touch with glory the home of a carpenter.

"And from then until now the simple surroundings of the Nativity have quickened the humble and lowly of earth, as never the highborn and proud. The plain-song of carols, the glow of candlelight, the modest decorations and inexpensive tokens of regard may be had by the poorest comer.

"Indeed, Christmas is defamed whenever men in their foolishness invest the celebration with pretentiousness. There can be no counterfeit for Christmas, the pure joy of the heart's elation, and there need be none.

"And so our billion-dollar economy is rivaled by a few sprigs of holly and a wisp of tinsel. Amid the torrent of words that belt the globe every instant of time, the timeless event that took place in the dark pocket of a forgotten era still makes news.

"And no wonder. For Christmas celebrates the coming of One who brought to earth the light of God's purpose, the warmth of His love, the resistless sweep of His sovereign will. And who did it with materials available to everyone — unfailing love, unwearying kindness, unfaltering trust in the power of good will to solve every problem between man and man.

"This is Christmas in the beauty of simplicity.

"And simple homage is enough to do it honor, so long as the child has his toy, the friend his token of regard, the stranger a smile of greeting, the enemy the blessing of forgiveness, and the whole frightened and unhappy world the *rebirth of courage, compassion, and hope*, which is the gift supreme the Christ of Christmas brings."

In the great tradition of our forebears, who kindled the spirit of Christmas in our homeland, perhaps we can gather together armloads of courage, compassion and hope and spread them around to all who need them — and indeed all do need them — with the same wonderful words of confident anticipation: *Merry Christmas! Merry Christmas!* And for those who find the *establishment* a little hard to take, maybe it can be expressed in verse. A man named Elder Olson put it this way in his *Directions to the Armorer*:

All right, armorer,
Make me a sword —
Not too sharp,
A bit hard to draw,
and of cardboard, preferably.
On second thought, stick
an eraser on the handle;
somehow I always
clobber the wrong guy.
Make me a shield with
easy-to-change
insignia. I'm often
a little vague
as to which side I'm on;
what battle I'm in.
And listen, make it
a trifle flimsy,
not too hard to pierce.
I'm not absolutely sure
I want to win.
Make the armor itself
as tough as possible,
but on a reverse
principle: don't
worry about its
saving my hide;
just fix it to give me
some sort of protection —
any sort of protection —
from a possible enemy
inside.

There are many inspirational words for the courage, compassion and hope of Christmas. May your life be blessed particularly this season by the hearing or reading of those which will give to you a more glorious meaning in Christmas than you have ever experienced before. Perhaps you'll find it in those splendid old carols.



Sage Chapel.

The faculty, staff and student body at your Alma Mater join me in reaching across the miles to you with that same magnificent greeting: *Merry Christmas!*

Welcome to the hearth

As I prepare to arrange glimpses of our last year's history for you in a panoramic vista, I do so this evening before a warm hearth. Apple wood is burning beneath the chimney and the flames which curl around the logs are casting flickering patterns of color and shadow throughout the room. They help to create a pleasant feeling of nostalgia, so that it is possible to imagine that you are sitting in that wing-back chair at the opposite end of the tiles. And it is possible to imagine that you, good friend, are anxious to know how your Alma Mater is faring. So let us take our imaginary annual journey through the corridors, laboratories and clinics, pausing just briefly enough here and there so that you will feel the greatness of the people whom we shall mention.

ANATOMY

It is a privilege to report to you that Robert E. Habel, our polylingual Head of the Department, was elected during this past year to membership in the *Utrecht Society of Arts and Sciences* in Holland. You will recall that he holds the M.V.D. degree from the State University of Utrecht. He also represented the American Association of Veterinary Anatomists at an International Congress of Anatomists in Leningrad, Russia, last August. And Howard E. Evans was recognized for his outstanding contributions to veterinary medicine by having been elected to honorary membership in the American Veterinary Medical Association. Acadia University in Wolfville, Nova Scotia, tried to pry him loose to become Head of its Department of Biology. Fortunately for us, he decided to stay at Cornell. Just when we were beginning to breathe easier, another offer came in for Howard to consider appointment as Chairman of the Department of Biological Sciences at Florida Technological University! But he declined that too, so for a time our blood pressure will be normal, perhaps. In the meantime, he is serving in another extramural capacity on the Curriculum Committee of Cornell University's Division of Biological Sciences. John F. Cummings was elected to membership on the Graduate Faculty in the Field of Neurobiology and Behavior.

Michael M. Bryden, B.V.Sc., Ph.D., was awarded the *Doctor of Science in Veterinary Medicine* degree in September, the first degree of its kind awarded by Cornell University. A native of Sydney, Australia, he served as an instructor in the Fall term, and then returned to Australia where he joined the Veterinary Faculty at the University of Sydney. John F. Munnell, Fellow in Electron Microscopy, was appointed to the faculty of the Department of Anatomy and Histology, School of Veterinary Medicine, University of Georgia.

The *Embryo Reference Project*, which has been carried out under the guidance of Howard E. Evans and Wolfgang O. Sack, was com-



The Clock Tower on Uris Library, housing the carillon and great tenor bell.

pleted before Wolf Sack and his family left for a sabbatical year in Munich, Germany.

The extensive slide collection of serially sectioned domestic animal embryos with accompanying data and photographs, which the department received from the Division of Biology, has been completely cleaned, boxed, and catalogued.

A reference file pertaining to domestic animal embryology has been established and will be maintained with the slide collection. The plotting of size and age data, and the tabulation of external features from our own specimens and from the literature has enabled us to plot growth curves for domestic species. These curves can be used to estimate the age of a measured embryo or to estimate the size and morphological status of an embryo or fetus at any stage of gestation. The collection is available for study, should you be interested.

Sandy deLahunta and John F. Cummings have been devoting considerable time and energy to studies in neurology. They have been collaborating with clinicians and microbiologists in studies ranging from cerebral cortical ablations in horses (resulting in correction of erroneous mapping of the motor area) through bovine and feline cerebellar degeneration due to fetal damage by viral agents (bovine virus diarrhea and feline panleukopenia).

PHYSIOLOGY

Emmett Bergman returned from his sabbatical leave as Visiting Professor of Physiology at the Cardiovascular Research Institute, San Francisco Medical Center, University of California. While there, he studied fat metabolism. More specifically, he studied *chylomicrons*, or absorbed fat globules, using surgical techniques developed by Walter Roe, Mike Katz and himself and using numerous sophisticated methods of bioassay. Emmett mentioned that an interesting sidelight in these very important and fascinating studies (which impinge on diseases like ketosis, arteriosclerosis and parturient paresis) is that *chylomicrons* were discovered and named by Simon H. Gage and Pierre A. Fish many years ago in the New York State Veterinary College. Their discoveries, reported in 1924, paved the way for modern investigations on fat metabolism and the diseases of faulty fat metabolism. Previous to the observations of Gage and Fish, the *chylomicrons* (so named because they were derived from lymph and are one micron or less in diameter) had been called "blood dust," "granules" or "contaminations." John F. Wootton also has returned from his sabbatical year as Visiting Scientist, Laboratory of Molecular Biology, University of Cambridge, England. While there his lovely wife, Joyce, was struck by an automobile and spent many uncomfortable weeks in a hospital. However, she has fully recovered and it is good to have them back in the fold.

The National Science Foundation made it possible for Ed Stevens to present some of his work on transport functions of rumen epithelium before the International Symposium on the Physiology of Digestion and Metabolism in Ruminants, held at the University of Cambridge, Eng-



Studies in Rumen Anatomy and Physiology.

land. At the same symposium, our physical chemist with a delightful British accent, Alan Dobson, and Alvin F. Sellers, our capricious mountain-climbing Department Head, participated as discussants for the Sections on Absorption and Physiology, so you see we were well represented there. And Alan Dobson has now settled in for a sabbatical leave at the Rowett Institute for Physiological Research in Aberdeen, Scotland.

Bill Arion, who came to Ithaca from the land of the Dakotas, received a grant from the National Science Foundation to study the regulation of microsomal liver glucose-6-phosphatase activity. This enzyme represents a major factor in the regulation of blood glucose concentrations and Bill is attempting to determine the biochemical basis for changes in enzyme activity. Bill had an enticing offer by one of the fine industrial companies, and we feel particularly pleased that he decided to continue to cast his lot with us instead.

Arthur L. Aronson, our peripatetic pharmacologist, is a most effective and popular teacher. And, as seems to be characteristic of all good teachers, he has that enthusiastic inquisitiveness which inspires others to look over his shoulders and become excited about his studies. He has particular interest in chelating (gripping) agents which are the drugs of choice in promoting the urinary excretion of heavy metals (including many radioactive metals). *Calcium ethylenediaminetetraacetate* is the chelating agent most widely used (and we challenge you to say that with a mouthful of hydrated psyllium seeds). The name is a tongue-paralyzer but there is a problem inherent in the drug that is even more baffling. To achieve maximal metal excretion, the dosage of CaEDTA often must approach toxic levels. And that is where we find Art Aronson working: in the elucidation of the mechanisms of toxicity. He has found that the most significant biochemical defect during the course of toxicity is a marked derangement of collagen metabolism, as seen by a pronounced increase in urinary hydroxyproline. Many fine scientists have been perplexed by derangements in collagen metabolism, so Art is working in an area of great interest to the medical community.

While Art Aronson is whittling away at the means by which CaEDTA effects this biochemical lesion, another one of our colleagues is probing the significance of increased collagenase activity in hip dysplasias. He is George Lust, Assistant Professor of Biochemistry at the Veterinary Virus Research Institute, who is interested in collagen metabolism too.

The particular strength of the physiologists in this Department is in knowledge of the gastrointestinal tract, especially from the standpoint of *comparative gastroenterology* and significantly from the standpoint of ruminant physiology. We also are fortunate that a number of our clinicians are very interested in diseases of the gastrointestinal tract. And a couple of our anatomists are strongly interested in the selective absorption of rumen epithelium. For example, Bob Habel has been studying adenosine triphosphatase activity in the bovine rumen. Bob Whitlock, who has just completed the requirements for the Ph.D. degree in Pathology and was appointed Assistant Professor in the Depart-

ment of Large Animal Medicine, Obstetrics and Surgery, is particularly intrigued by the clinical manifestations of diseases of the gastrointestinal tract. This multidisciplinary interest provides excellent opportunity for trans-departmental collaboration, and gives the Cornell team an enviable reputation for excellence in this area.

MICROBIOLOGY

Our microbiologists continue to be actively involved in teaching and research in bacteriology, virology and immunology. Dorsey W. Bruner, loyal and enthusiastic supporter of the Yankees, Kentucky blue-grass country and the *Salmonellae*, and S. Gordon Campbell, our Scottish wrestler with the problems of animal allergies, are the two mainstays for bacteriology in the Department. We must, of course, recognize other bacteriologists, including Alex Winter who works in fundamental problems of vibriosis in the Reproductive Studies Section, and Neil Linwood Norcross, who champions the streptococci, (particularly those associated with mastitis). These men are in the Department of Large Animal Medicine, Obstetrics and Surgery. And we must not neglect Bob Dellers who has just completed the Ph.D. degree in the Department of Microbiology and is now working with Sidney Nusbaum in the Diagnostic Laboratory, Department of Pathology. You can see that it is difficult to pin-point disciplinary strength in a single Department. However, the Departments are structured on the basis of their primary didactic functions in the veterinary medical curriculum. The primary *teaching* of veterinary students in bacteriology and immunology is covered by Dorsey W. Bruner and S. Gordon Campbell. Virology is handled by other faculty members, including James H. Gillespie, Leland E. Carmichael, Fredric W. Scott and Max G. Appel.

Max Appel was elected Associate Professor of Veterinary Virology in the Department of Veterinary Microbiology. He holds the D.M.V. degree from Hannover, Germany, and the Ph.D. from Cornell. Before coming to Cornell he served as Research Assistant, University of Munich, Germany; Postdoctoral Fellow, University of Saskatoon, Canada; and Research Officer, Animal Disease Research Institute, Quebec, Canada.

S. Gordon Campbell was elected Associate Professor of Veterinary Microbiology in the Department of Veterinary Microbiology. He received the B.V.M.S. degree from Glasgow University, Scotland; the M.V.Sc. degree from the Ontario Veterinary College, Canada; and the Ph.D. degree from Cornell. Before assuming his present duties at Cornell University he served as House Physician at Glasgow University, as an Officer in the British Army in Malaya, and as Senior Lecturer at Melbourne University, Australia.

James H. Gillespie, our skijoring alpine virologist-plenipotentiary, returned last September from a year of sabbatic leave at the University of Bern, Switzerland, and is actively engaged in the biochemical, biophysical and immunological classification of viral agents of animals, especially cats. Recognizing these studies, the Department of Micro-

biology was designated by the World Health Organization a *WHO Laboratory for Comparative Medicine: Feline Diseases*.

Kyu M. Lee began a year of sabbatic leave in February to study feline leukemia at the National Cancer Institute, National Institutes of Health in Bethesda, Maryland, and we look forward to his return.

Alexander Zeissig transferred from the Department of Pathology to the Veterinary Virus Research Institute where he held an appointment as Research Associate, working in the nuances of the complement-fixation test, until his retirement late in the year.

James A. House received his Ph.D. degree in Veterinary Virology from Cornell in September 1969 and was appointed Research Associate in the Veterinary Virus Research Institute. He held that position until June 1970, when he resigned to accept a post as Senior Virologist with the Pitman-Moore Company.

The Seeing Eye Foundation granted \$25,542 to Leland E. Carmichael and Stephen I. Bistner for a study entitled *Immunopathogenesis of Ocular Complications of Infectious Canine Hepatitis: Pathogenesis of Uveitis and Effects of Local Immunosuppressive Therapy in Ocular Lesions*.

Serum-neutralization tests for antibodies against canine distemper have been carried out for almost two decades in embryonated chicken eggs. The method is reliable, but it is expensive and time-consuming. Preliminary results in studies by Max Appel, James A. Baker and Douglas S. Robson have indicated that the test can be performed rapidly and inexpensively in tissue culture microplates using Vero cells and an Onderstepoort strain of distemper virus. That should be encouraging to all our colleagues in small animal practice.

Gordon Campbell carried out a survey of dairy cattle in New York State showing that 0.5 percent suffered from a disease known as *milk allergy*. Certain animals become sensitized when an undue engorgement of the udder develops and the victims absorb their own milk components. Some of these absorbed substances in repeated experiences react with circulating antibodies in the susceptible animal and produce a generalized allergic reaction. The predominant clinical manifestations are generalized urticaria and respiratory distress. The pathogenesis, pathological findings and clinical findings of this condition in cattle have been reported and its occurrence in other mammals is currently under investigation.

Leland E. Carmichael has been studying canine brucellosis. A variant of *Brucella canis* that is less mucoid than the virulent strain was studied and found to be immunogenic for dogs and of reduced pathogenicity. This led to the hope of its use as a vaccine. It appeared genetically stable and caused production of very low titers of antibody in inoculated dogs. When the variant was used as a vaccine, however, it was found that inoculated dogs developed a bacteremia that lasted as long as six months. Histopathological study of these animals confirmed the preliminary findings of reduced pathogenicity, but the lesions produced consisted of mild-to-moderate lymphoid hyperplasia; chronic, focal in-

terstitial prostatitis; and lymphoid nodules in various tissues. Because of these findings, consideration of this variant for vaccine purposes was discontinued.

Susceptibility of humans to *Brucella canis* has been confirmed. Prior to March 1970, human infections that were identified were limited to laboratory workers. Recently, however, a natural case of canine brucellosis was diagnosed in Philadelphia, Pennsylvania, and confirmed in our laboratories by serological tests and characterization of the organism isolated from the patient's blood (on 7 occasions). The isolates produced brucellosis in inoculated dogs.

Jim Gillespie and Catherine G. Fabricant have been collaborating in the continuing microbiological studies of feline urolithiasis, and the evidence is good that a virus is implicated in the pathogenesis. Well, so much for a glimpse of the research in this Department. The staff has many related interests too.

Dorsey W. Bruner was an active member of the Allergy and Infectious Diseases Training Grant Committee of the National Institutes of Health.

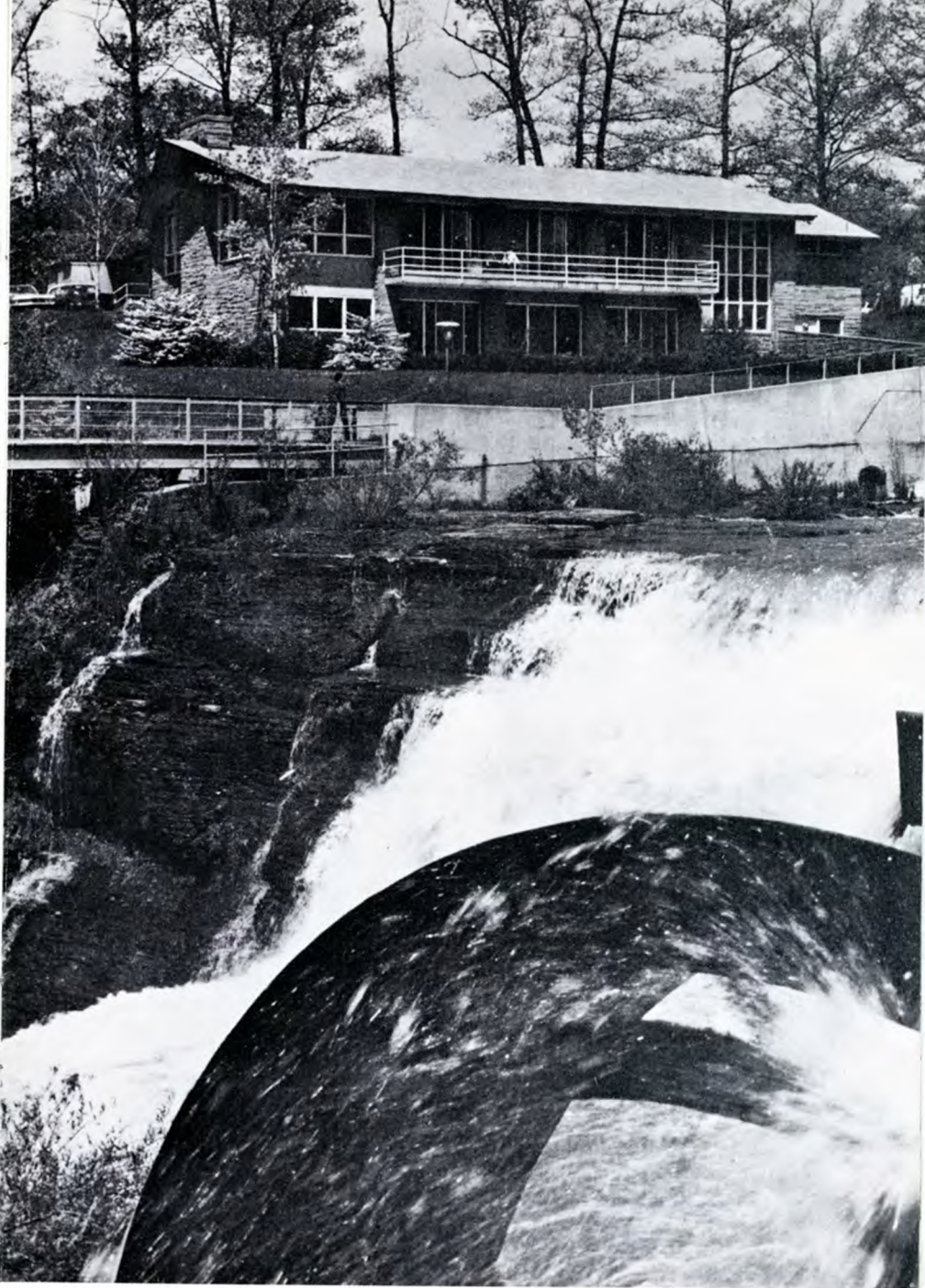
Fred W. Scott, a familiar figure on the collegiate baseball diamond during his student days, was elected a member of the College's Curriculum Revision Committee and was appointed Chairman of the College's Animal Care Committee.

Jim Gillespie continued his activities as a consultant to the Research Reference Reagents Branch, National Institute of Allergy and Infectious Diseases; as a member of the Subcommittee on Veterinary Microbiology, National Academy of Sciences; as a member and Co-chairman of the Western Hemisphere Committee on Animal Viral Characterization; as a member and Chairman of the World Health Organization Working Team on Feline Picornaviruses; as a member of the AVMA Council on Biological and Therapeutic Agents and Chairman of its Committee on Biologics; and as a Co-chairman and a speaker at the Symposium on Immunity to Selected Canine Infectious Diseases, co-sponsored by the AVMA and by the American Kennel Club. And beside that, he has just built a new home.

PATHOLOGY

Charles G. Rickard, Associate Dean for Pre-Clinical Studies, continued as consultant to the National Cancer Institute and served as a member of an Advisory Committee of the Special Virus Cancer Program. He was also appointed to serve on the Advisory Committee for the Canton Regional Animal Health Laboratory, Agricultural and Technical College, Canton, New York. During the past year, he also presented seminars at the following institutions: St. Jude Children's Research Hospital, Memphis, Tennessee; the Rockefeller University, New York City; the Chicago Veterinary Society; and the Agricultural and Technical College, Canton, New York.

Through the efforts of John M. King, the Department of Pathology sponsored a five-day intensive review in general gross and microscopic



Noyes Lodge on the brink of Beebe Falls at Triphammer Bridge.

pathology for veterinary pathologists. This was well-received, with participants coming to Ithaca from as far away as Iowa, Oklahoma, and California. Peter Olafson participated actively in this too as a guest lecturer.

And just to give you an idea about *its* productivity, I must tell you that the Laboratory of Nutritional Pathology, directed by Lennart P. Krook, examined 800 animals or groups of animals for evidence of nutritional diseases. This involved the study of 11,000 slides. Maybe that explains why one can frequently find Lennart Krook in his laboratories at 5 o'clock in the morning. His day begins early!

Sidney R. Nusbaum assumed directorship of the Diagnostic Laboratory during this past year. Prior to assuming the duties of that office, he spent several weeks observing and studying diagnostic methods in laboratories in the midwest, particularly in the College of Veterinary Medicine at Iowa State University and at the Diagnostic Laboratory, Department of Veterinary Science, South Dakota State College of Agriculture, in Brookings, South Dakota. During the year a *data retrieval system* was initiated, making laboratory results more usable and applicable. A proposal was prepared for long-term development of an expanded central, reference veterinary diagnostic laboratory at the College and eventually a Statewide diagnostic service. This proposal was submitted to the Legislature with the support of the State Department of Agriculture and Markets. Although the plan was not adopted in its entirety, some funds were granted to the Diagnostic Laboratory for expansion, and in addition, the Department of Agriculture and Markets was authorized by the Legislature to make a further study of future needs. This is extremely encouraging.

John H. Whitlock, eupatrid College parliamentarian and bow master of the bass viol, is still an enthusiastic scholar of the social and genetic habits of *Haemonchus contortus*. But he is about to seek the solitude of an Aleutian island. Let me explain:

John holds a joint appointment as Professor of Parasitology in the Veterinary College and in the University's Division of Biological Science. He teaches Elementary Parasitology in the Veterinary College and a recitation in Biology 201 and 202 in the College of Arts and Sciences. He is an assistant editor of the *Journal of Parasitology* and an occasional consultant for the National Science Foundation and for journals such as *Science*, *Experimental Parasitology*, the *Journal of Theoretical Biology* and the *Cornell Veterinarian*. He has graduate students in the fields of Ecology and Veterinary Medicine. He has supervised two successful Doctor of Philosophy degrees this past year and has acted as external examiner for the Doctor of Science degree for a distinguished overseas university. He is on the Board of Directors of the *Cornell Center for Environmental Quality Management* and on the Executive Committee for the Ford Foundation grant in *Ecology of Pest Management*. He served as an observer to the Senate of the State University and is a member of the Senate of Cornell University. He supervised the elections of the Cornell Senate and was a member of the

Interim Elections Committee and the *Drafting Committee* of the *Constituent Assembly* which formulated the Senate and shepherded it through the approval of the Constituent Assembly itself, the Cornell Faculty, the Cornell Board of Trustees, and the Cornell community. In all of these responsibilities he has served with distinction. He has only one complaint and that is that *he has not done a bit of research for a year!* As a matter of fact, he feels a strong kinship to Aristedes the Athenian, who though he fought as Commander of his tribe at the battle of Marathon was subsequently ostracized by his own people. Thermistocles was responsible for his being ostracized and Aristedes carried out a thankless mission. Well, we have not recognized a Thermistocles in our clan and on the contrary are grateful for all John's efforts.

Ellsworth Dougherty III, and Fausto E. Waterman were appointed Senior Research Associates in the cancer research section of the Department.

Fernando Noronha spent his sabbatical leave at the National Cancer Institute in Lisbon, Portugal, and in collaborative research with Professor Werner Schaefer at the Max-Planck-Institut in Tubingen, Germany. These two fine scientists produced some fascinating information on the internal makeup of the cat leukemia virus. They learned that two specific antigens are always present in cat leukemia and sarcoma cases. One of these two antigens also is present in the leukemia virus of mice. In the research carried out by Doctors Noronha and Schaefer, they found that this same antigen also is present in preparations of tissue cultures derived from malignant tumors of man and the cow.

The presence of this antigen in different species suggests that a test is available to search for the elusive leukemia virus and perhaps other cancer viruses in man.

An investigation of equine piroplasmiasis in field and laboratory animals was initiated by Sidney R. Nusbaum and Beverly A. Coote. The identification of two cases of this disease of tropical and subtropical climates in New York brought home the necessity of continued vigilance and effective control programs. Research revealed that there is a danger of mechanical transmission which was not previously recognized.

Several additional members of the Pathology Department faculty participated this year in the teaching of veterinary students, giving the instructional program greater depth and a somewhat broader coverage than in previous years. John E. Post of the Oncology Section; Sidney R. Nusbaum, Director of the Diagnostic Laboratory; and Clyde I. Boyer, Jr., in Laboratory Animal Medicine, each conducted several organized seminars in the areas of their specialization. The faculty is working toward the utilization of group discussions and conferences instead of primary reliance on formal lectures.

In the formal course in Special Pathology, small groups of students carried out research projects of their choice. This is an innovation introduced by John M. King. Project advisors from a number of the Departments in the College assisted them. Most projects involved a modest amount of animal experimentation, and the students gained some expe-



Just to make you feel nostalgic! Actually that is Lindley C. Kent carrying the financial ball for the College.

rience in experimental design, proper animal care, research methodology, and interpretation of results. The program was highly successful and will be expanded next year.

An antigen specific for equine infectious anemia was found in the spleen of acutely infected horses by Leroy Coggins, with the collaboration of Neil Norcross. Using this antigen, an agar-gel immunodiffusion diagnostic test has been developed for the detection of EIA antibody or the virus. The test is simple, rapid, and inexpensive and has been shown to be an accurate and reliable indicator of equine infectious anemia in horses. Using this test, a survey of the disease incidence in New York State horses has been initiated.

Systematic morphological study of the many species of equine strongyles is being carried out as a long-range project by Jay R. Georgi. So far, several thousand specimens representing thirty species have been collected, identified, and catalogued. Several hundred photomicrographs of superior quality have been obtained using the Nomarski differential-interference-contrast technique. These photomicrographs depict the key morphological features of these parasites essential to correct identification. Work is in progress toward the development of an illustrated key to the equine strongyles that will utilize these photomicrographs.

Jay Georgi is a man of many talents. He is an inspiring teacher and a patient, imaginative and practical researcher in parasitology. And he is the capricious *Kapellmeister Trompeter* of the *James Law Brass Ensemble* and the *Konzert Bratschespieler* of the Veterinary College string and woodwind symballophones, otherwise known as the *Sine Qua Non Fiddlers*. They practice each week on the stage of James Law Auditorium at the close of classes and they sound great. Anyone accomplished on an instrument is invited to join them; faculty, staff, students and clientele alike. One of us, a somewhat questionable batrachian baritone, offered to contribute a uvia obligato, but the audition was postponed indefinitely. You can see, therefore, that they insist upon quality.

It is a privilege to report to you that Alfred Lenneth Britt has accepted our invitation to join the professional family as Senior Research Associate in Pathology on the staff of the Diagnostic Laboratory. Len holds the D.V.M. and Ph.D. degrees from Michigan State University and the M.P.H. degree from the University of Michigan. He has served on the faculties of Michigan State University and Auburn University and also served as Pathologist at the Florida Animal Disease Diagnostic Laboratory. He is a splendid pathologist; a fine colleague.

Lennart P. Krook and his co-workers have continued in their studies on periodontal disease. Continuing studies in this field have included histopathologic examination of eighteen human cases. It has been shown that the human disease is identical to the experimental periodontal disease in dogs induced by low calcium - high phosphorus feeding. These studies were supported by experiments to demonstrate the dynamics of bone flow. The patterns of triple fluorochrome labeling of bone, dentin

and cementum in adult beagles indicated that these tissues are in a constant flow. They are formed at opposition surfaces and flow toward the deepest part of the tissue to be absorbed by osteolysis, dentinolysis, and cementolysis, respectively.

There is quite a team engaged in feline leukemia research. Under the guidance of Charles G. Rickard, this team includes Fernando Noronha, John Post, Americo Poco and Ellsworth Dougherty III. It also includes Walter J. Sickles, Fausto Waterman, Kuy M. Lee and Louise Barr. Let me abstract two of their reports to give you an idea about what they have done after proving that feline leukemia is a virus disease:

"Cat leukemia virus of our transmissible strain was propagated in large volume cultures. A suspended cell culture derived from the neoplastic thymus gland from cat F-422, an experimental case of feline leukemia, produced large quantities of feline leukemia virus. This was grown in one-liter roller bottles. Virus titer increased in the supernatant fluid through the third day of culture. Virus was recovered by three successive cycles of density gradient centrifugation. This partially-purified virus was used to immunize goats. The resulting antiserum had a sufficient antibody titer, so that it could be used in the Ouchterlony agar-gel diffusion, fluorescent antibody, complement fixation, and neutralization tests. It was also possible to inoculate cat embryo tissue cultures with small amounts of cat leukemia virus, incubate them for two to three weeks to permit multiplication of the virus, and demonstrate the virus by complement fixation or electron microscopy." I'm sure you'll agree that this represents great work, and we are mighty proud of our colleagues who are bearing down so splendidly on this difficult problem.

In another study, a spontaneous *fibrosarcoma* in a cat was found to contain what are called "C-type" virus particles, resembling feline leukemia. It is especially significant that virus particles were found by electron microscopy in the spleen of this spontaneous case, and transmission was achieved with inocula prepared from the spleen. This indicates that the sarcoma virus infection was a systemic one, possibly permitting a shedding of the virus through the body excretions. More recently, it was demonstrated that this disease can be transmitted by placing a drop of virus-containing material on the scarified skin of young kittens. This suggests the possibility that fibrosarcomas in cats might be transmitted by *scratching* or *biting*. Fascinating studies?

In addition to the teaching and research activities in which our colleagues in Pathology are busily engaged, they too find time to participate in extramural projects. For instance, Lennart P. Krook served on a site visit committee for the National Institutes of Health at the Massachusetts Institute of Technology. John M. King served as a consultant to the Animal Medical Center in New York City, to the Carnegie-Mellon University in Pittsburgh, Pennsylvania, and to the Agway Corporation Research Department at Ithaca. Clyde I. Boyer, Jr., served as consultant to the Department of Psychology, Liddell Laboratory, Cornell University and made numerous trouble-shooting trips on laboratory animal disease problems. Sidney R. Nusbaum was appointed to

the Committee on Equine Diseases of the United States Animal Health Association, and the Public Relations Committee of the New York State Veterinary Medical Society. Charles G. Rickard, John E. Post and Fernando Noronha were on the program of the IVth International Symposium on Comparative Leukemia Research, held at Cherry Hill, New Jersey.

PHYSICAL BIOLOGY

During the year, members of this Department too participated energetically on the "speaking circuit." Cyril L. Comar, Head of the Department, took part in the Ninth Annual Hanford Biology Symposium; seminars of the Food and Drug Administration, Bureau of Veterinary Medicine; Senator Muskie Hearings on Air and Water Pollution; and United States Atomic Energy Commission Chairman Seaborg's Mission to Africa. He continued to serve as Chairman of an Advisory Committee of the National Academy of Sciences to the Federal Radiation Council, and served as a member of the Radiological Health Council and the National Council on Radiological Protection.

Robert H. Wasserman gave seminars at the University of Pittsburgh School of Medicine; University of Vermont Medical School; University of Connecticut; St. Louis University Medical School; and the Washington University Medical School in St. Louis. He presented lectures at the Gordon Conference on Cell Structure and Function and at the Harry Steenbock Symposium on the Fat Soluble Vitamins. He was appointed a member of the Board of Editors of *Proceedings of the Society of Experimental Biology and Medicine*. He was also a special consultant to the Dental Research Center, University of North Carolina, Chapel Hill, North Carolina.

Frederick W. Lengemann attended a symposium on *Liquid Scintillation Counting Techniques* in Boston, Massachusetts. He was appointed a member of the Subcommittee on Radionuclides in Food of the Food Protection Committee of the National Academy of Sciences/National Research Council.

Edgar Gasteiger presented a paper entitled *Beyond Homeostasis and Cybernetics: A Speculation of Spinal Noise* to the Medical Society of Lombardy, Milan, Italy. He presented a film and lecture entitled *A Walk Through the Brain: Cinematographic Animation of Brain Structures* to the Department of Biological Sciences, State University of New York at Albany, New York, and to the Brain Research Center at the University of Rochester.

Peter H. Craig was appointed Chairman of the College's Curriculum Revision Committee. He is a Fellow of the American College of Veterinary Pathologists, and has participated as a member of the Cornell Constituent Assembly, Constitution Drafting Committee.

Dick Wentworth and Fred Lengemann have developed a technique to determine the total amount of radionuclide that will be consumed in milk by individual persons after the accidental deposition of radioactivity on pastures. They have worked primarily with radioiodine and

radiocesium and are now using the same model to study radiostrontium, a very important bone-seeking radionuclide. John C. Thompson, our Model B Ford enthusiast, has been continuing to deal with all the economic nuances of radioactive contamination of the food chain. Cyril Comar and Peter Craig have been particularly concerned with problems of strontium turnover in swine and dogs.

Before Alison P. Casarett left on her sabbatic with her twin daughters, Jenny and Lisa, for Headington, Oxford, England, she had been busily engaged in studies on the radiation effects on preimplantation mouse embryos (mouse embryo cultures, *in vitro*, from the two-cell to the blastula stage). The embryos were irradiated *in vivo* prior to flushing and *in vitro* after flushing from the oviduct. She plans to implant these in foster mothers and follow the abnormalities determined in pre-implantation studies.

Edgar L. Gasteiger has been concerned with studies on chemo-protective agents which can ameliorate the damaging effects of ionizing radiations. Most studies thus far have been done on agents which reduce the number of *deaths* resulting from radiation exposure. He has been concerned with more graded and possibly more sensitive measures. Since *behavior* of mammals can be modified by as little as 20 to 50 roentgens of x-rays, tests were devised to see if chemo-protective agents could be found which would reduce the *behavioral response* (and hence the biological effect) of radiation. By use of x-ray conditioned aversion behavior in rats, it has been possible to demonstrate that the protective agent WR2721 does reduce the strength of the aversion. Incidentally, you probably want to know what WR2721 is. Well, it is aminopropylaminoethylthiophosphate. In all probability your pre-teenage daughter can say that backwards, especially if she can fit it to the rhythm of jumping rope. But if you have loose dentures, maybe it would be safer for you to stick to WR2721.

Anyway, what is important here is that the behavioral assay method worked out by our neurophysiological sleuth, Ed Gasteiger, shows useful potential for evaluating protective agents against ionizing radiation. Also, such agents may prove useful in unraveling the mechanisms involved in *behavioral responses* to ionizing radiations.

Lou Nangeroni transferred to the Department of Physical Biology from the Department of Physiology during this past year and in the fall left for a sabbatical year at the University of California in Davis.

Bob Wasserman is still very much interested in bone metabolism and, with Alan N. Taylor, has been carrying out some fascinating studies on immunofluorescent localization of the vitamin-D dependent calcium-binding protein. They demonstrated that lipolecithin, a soluble phospholipid, interacts with the calcium-binding protein and, via this interaction causes calcium to be released from the protein. This action can be reversed by the interaction of taurocholate (a salt of an organic acid commonly found in bile) which removes lipolecithin from the protein. These observations appear to have bearing on the mechanism of action

of the calcium binding-protein in calcium translocation. We are getting closer to an understanding of milk fever!

Francis A. Kallfelz has been teaching the course in *Applied Radiation Biology* to our veterinary students. Also, in collaboration with Jack E. Lowe of the Equine Bone and Joint Disease Research Laboratory, he has been adapting the T-4 test (determining the total serum thyroxine by competitive protein-binding of labeled thyroxine) for routine clinical use in the horse as it is now used by clinicians for the dog.

Cyril Comar, Fran Kallfelz, Alison Casarett and Peter Craig have embarked on a study of plutonium 238 as an energy source that can be implanted within the body, hopefully to produce sufficient power to operate an artificial heart for several years. This radionuclide was selected because of its relatively long half life (86 years) and its relatively high power density.

You will recall that we have an on-line computer located at the Laboratory of Radiation Biology, a field laboratory of the Department of Physical Biology, under the direction of Cyril L. Comar. Howard Moraff and Frederick L. Hiltz, bioengineers, have established extremely interesting neurophysiological research programs with on-line connections to the computer. One involves neural and behavioral correlates of skin sensibility in collaboration with Daniel N. Tapper, our veterinary neurophysiologist. The other involves the development of techniques for analysis of electrocardiograms, in support of myocardial infarct research at the Cornell Medical College.

Use of the computer facility, both by department staff and by outside scholars, increased steadily through the year. To provide for expansion of the facility and to upgrade the system performance, a proposal was submitted to the National Institutes of Health for purchase of a more modern computer (PDP-15, Digital Equipment Corporation), and for *hardware* and *software* which are more suitable to a scientific research environment. The proposal was approved and funded!

AVIAN DISEASES

During this past year our affable and competent Head of the Department of Avian Diseases, Stephen B. Hitchner, had a most unusual invitation. As you are well aware, our staff travels about the world rather extensively, participating in conferences, consultations, conventions and colloquia of all sorts. And that is wonderful. It is very important to be in the mainstream of professional activity, so we encourage participation of this kind. But it is not often that one of our clan is invited to participate in a workshop conference in Bermuda! Well, such an invitation was given to Steve by the Department of Agriculture and Fisheries last May. We hope that he did such a good job that he might be invited back, in *February*. And you know the story of the camel getting his head under the tent. It is not long thereafter that the whole camel is in the tent! Well, in metaphor, Steve can be the camel's head. All of his scholarly colleagues who struggle against the wintry blasts that pummel Ithaca in February will gladly represent the rest of the

camel, just to get under the flaps of that tent, the jewel of the Caribbean, *Bermuda*.

Bruce Calnek has been continuing in his very productive studies on the pathogenesis of Marek's disease, caused by a cell-associated herpes virus. He has demonstrated the virus in feathers after one year in storage at ordinary refrigeration temperature. Apparently the stratified squamous feather-follicle-epithelial cells, which are released to the environment as dander (dandruff) or attached to molted feathers, are potent sources of virus in the natural spread of Marek's disease (avian neurolymphomatosis). Bruce and Steve Hitchner have found a way to produce an effective vaccine against Marek's disease by using a variant turkey-strain of the virus and lyophilizing (freeze-drying) that virus in the presence of protective stabilizers. Marek's disease undoubtedly will be the first tumor in man or animal ever controlled by a vaccine on a large scale. Bruce Calnek served as a member of the Surgeon General's Committee to consider the public health significance of the avian tumor viruses.

Malcolm C. Peckham has been associated with at least two very interesting studies this year. He was consulted when a strange disease threatened to wipe out the waterfowl population in the shallow waters of Fuertes Pond in Ithaca's Stewart Park. The alarm was raised when two swans in the pond began to act peculiarly. The disease was identified as *botulism* associated with pollution caused by the accumulation of organic matter and stagnant water. Mal also developed an inexpensive, rapid and dependable agar-gel diffusion technique for the diagnosis of virus bursal disease in chickens. And he identified a fatal disease in a collection of Mexican parrots as Newcastle disease.

P. Philip Levine has been carrying out studies once again in that parasitism which had gained him a world-wide reputation of outstanding scientific excellence a couple of decades ago: avian coccidiosis. He has been endeavoring to elucidate the mechanism of the immune reaction against two species of *Eimeria*. Phil spent a few months as an FAO (Food and Agricultural Organization of the United Nations) consultant in avian pathology in Peru, Colombia, Brazil and Mexico. He was elected President of the World Veterinary Poultry Association. And most important, he was awarded the degree of *Doctor Medicinae Veterinariae Honoris Causa* by the Veterinary Faculty of the University of Munich in recognition of his contributions as a scientist and teacher.

The avian respiratory disease viruses continue to be major threats to the poultry industry. Steve Hitchner has been studying one of these that has been identified as the *Clark 333 virus* and is convinced that it is one of several subtypes of the infectious bronchitis virus. Because of his interest and competence in this area of infectious disease research, he was elected Chairman of the NE-5 Regional Research Committee for Respiratory Diseases of Poultry.

Louis Leibovitz, Field Veterinarian, Avian Diseases, was invited to attend the IVth Congress of the World Veterinary Poultry Association in Belgrade, Yugoslavia, where he served as a section chairman and

presented a paper on *The Histopathology of Duck Plague (Duck Virus Enteritis) in White Pekin Ducklings*. He presented a similar paper at the AVMA meeting in Las Vegas, Nevada, last summer. Duck Virus Enteritis has been eradicated from the commercial flocks on eastern Long Island through the painstaking efforts of the Director of the Eastport Duck Research Laboratory, William D. Urban, assisted by Thomas E. Toth, and Louis Leibovitz. It still appears in wildfowl, however. And the studies on *Duck Virus Hepatitis* continue to add new knowledge to that difficult disease. For a while it was believed that there was only one strain of the virus, but in 1968 a variant was discovered which is immunologically different from the classical strain. And then last year another agent was isolated by Thomas Toth which was found to be identical to the variant of 1968. This shows that one cannot relax the vigilance which must be maintained against this disease that raises economic havoc in the industry. And while the virologists keep their pressures on the virus diseases, Jessie Price and Mae Lummis bear down on the bacterial infections: *Pasteurella anatipestifer* and that ubiquitous old trouble maker, *Escherichia coli*.

Julius Fabricant has earned a world-wide distinguished reputation for his studies on mycoplasma. Culture purification and characterization procedures are still major challenges and these are primary objectives in his research.

Clement I. Angstrom is Chairman of the Committee on Nomenclature and Reporting of Diseases for the Northeastern Conference on Avian Diseases, and is a member of the Committee on Nomenclature for the American Association of Avian Pathologists.

CLINICAL STUDIES

In his annual report for the Clinical Departments, Associate Dean for Clinical Studies Kenneth McEntee stressed some important facts which seem particularly pertinent for this letter:

"The single most important function of the clinical departments is the instruction of undergraduate veterinary students. The reader should not be misled by the undue emphasis in this report on extracurricular activities of the staff, including extension and, particularly, research. This report is one of the few places where research effort is documented but our graduates are living evidence of the many years of our teaching efforts. We are proud of them.

Of the 31 professionals on the departmental staff, 17 devote a major portion of their time, 60 to 90 percent, much of it in contact hours, to undergraduate teaching. Nine more of the staff members provide considerable instruction to undergraduate students. Of the remaining five staff members, three are actively engaged in teaching graduate courses and in graduate instruction. Four of our non-professional staff members also devote most of their time to the instruction of students. This Department, together with the Department of Small Animal Medicine and Surgery, is responsible for nearly 100 percent of the instruction of the last two years in the undergraduate Veterinary College curriculum



Miss Helen A. Sadd, receptionist, and Dr. Michael D. Lorenz, interne, Small Animal Clinic.

as well as some of the undergraduate instruction in the first two years of the curriculum."

"R. Kenneth Braun (now on sabbatical leave at the University of California in Davis) and Alan D. McCauley continued to carry on herd health programs in a number of dairy herds in their respective ambulatory clinic areas. Approximately 36 herds ranging in size from 12 to 150 cattle each are being served in this manner. These herds provide practical instructional studies for our students.

"The lecture course in roentgenology was expanded by Jack Geary to two one-hour courses and moved from the second to the third year. This additional lecture time permits greater coverage of the essentials of interpretation and is now scheduled at a time when the students have more experience with clinical material. The fourth year students have received more formal laboratory experience with the technical aspects of small animal radiography while assigned to this section and are much more competent. The improvement resulting from this change has stimulated us to modify further our program for next year."

Donald D. Delahanty, who can lecture fluently in English or Spanish, has, along with his other teaching activities and patient care, developed a new course in clinical orientation for first year students. Its objective is to correlate basic studies to clinical problems. Gustaf Björck, who is spending a second year with us from the Royal Veterinary College in Stockholm, Sweden, developed a new course in clinical orientation for third year students, emphasizing methods of physical examination and clinical techniques in the large farm animal.

N. Bruce Haynes, Extension Veterinarian, assumed the responsibility of organizing and presenting the course in Veterinary Jurisprudence to the senior class, the course previously taught by Professor Emeritus of Surgery, A. Gordon Danks, who retired this year.

Ingemar Settergren of the Obstetrical Clinics Section, Royal Veterinary College of Stockholm, Sweden, ably assumed the duties of Stephen J. Roberts for the fall term while Steve was on sabbatic leave. He later assisted Steve Roberts in the laboratory sections of the course of Obstetrics during the spring term. Doctor Settergren also worked closely with clinicians in the Hospital and Ambulatory Clinics on a wide variety of obstetrical and infertility cases in horses and cattle. He has returned to Sweden but many of his excellent ideas and techniques will be retained and used in the future. A 16mm color film on *Induced Foaling in the Mare* was produced by I. Settergren, J. M. Wright and J. Lowe. A video tape instructional film has been developed on *Evaluation of Bull Semen* for the course in Veterinary Obstetrics by I. Settergren, J. M. Wright and J. C. Geary.

Toward the end of last year, Clinical Pathology was placed under the administrative responsibility of the Clinics as a component of Clinical Services. An additional technician was hired for hematological studies to improve the efficiency of the operation and to reduce the work load of the faculty members. An area between the Large Animal and Small Animal Clinics has been converted to a teaching laboratory,

thereby providing adequate space in a more convenient location for the faculty and students. The former teaching laboratory was converted into a biochemical laboratory to provide the sophisticated services required by modern veterinary clinics for their patients.

The central office for the Clinical Departments has assumed responsibility for all purchasing, inventory, billing and collection of bills for both Large and Small Animal Clinics and Hospitals.

The pharmacies for both Clinical Departments have been consolidated and a Pharmacy Assistant was hired to aid the Pharmacy Superintendent, Paul J. Seland. The present consolidated operation should prove much more efficient and economical.

The State appropriated \$75,000 for the installation of *Nordel*, a synthetic ethylene-propylene-based hydrocarbon rubber, on the floors of the breezeway, surgery suites and in the horse barns. This material provides excellent footing for large animals, is impervious, extremely durable and can be cleaned and disinfected with relative ease. This should assist greatly in eliminating the dust and dirt in the Large Animal Hospital areas arising from the unpaved portion of the present breezeway. Also it will assist splendidly in preventing injury to the large animal patients.

State funds are being requested for the construction of two surgical suites for large animals and a much needed audio-visual facility in the Large Animal Hospital. The present student laboratory for large animal surgery is to be converted to a sterile surgery and a surgical laboratory for students will be constructed between two of the finger barns.

N. Bruce Haynes continued as Chairman of the Committee on Audio-visual Communications, American Association of Extension Veterinarians, and as a member of the Committee on Mastitis of the United States Animal Health Association. He was reappointed by the Commissioner of Agriculture to the New York State Swine Health Committee.

In the course of his work on the Continuing Education Committee of the New York State Veterinary Medical Society, Bruce conducted a poll of all other states to determine what was being done elsewhere in this important area of professional education. Sixteen states have similar committees, six states have Academies of Veterinary Medicine formed for continuing education purposes. Four states have compulsory continuing education requirements for relicensure and eleven others are seriously considering similar legislation. In the years ahead the Veterinary College will need to devote more attention to this important aspect of veterinary education.

John E. Lowe has been appointed to the Horse Show Committee and the Problem-Solving Committee of the American Association of Equine Practitioners; Chairman of the Equine Practice Committee of the New York State Veterinary Medical Association; Secretary-Treasurer of the Beta Chapter, Omega Tau Sigma Fraternity Alumni Association and Faculty Advisor of the Cornell Student Chapter of the American Veterinary Medical Association. Jack was official veterinarian for the Washington International and four other "A" rated horse shows. At the Col-

lege he is a member of the Equine Bone and Joint Research Laboratory team with Herbert L. Schryver and Harold F. Hintz.

Herb Schryver was appointed to the Orthopedics Research Committee of the American Association of Equine Practitioners. Bob Hillman is back from his sabbatic in Lexington, Kentucky, after having had a wonderful year there.

Harold F. Hintz was appointed to the Editorial Board of the *Journal of Animal Science* and has continued to serve as a member of the Subcommittee on Horse Nutrition of the National Academy of Sciences/National Research Council.

Stephen J. Roberts, Chairman of the Department of Large Animal Medicine, Obstetrics and Surgery, was made Chairman of the Judicial Council of the American Veterinary Medical Association. He continues as Chairman of the Faculty Student Conduct Committee of the Veterinary College and a member of the University Judicial Board. He is a member of the Animal Science Advisory Council of the State University Agricultural and Technical College at Delhi, New York. And he remains active as Coach of the Cornell Polo Team.

Our genial Irish tenor, Jack C. Geary, has served as President of the American Veterinary Radiologic Society and was elected to membership in the Radiological Society of North America. He was an examiner for the American College of Veterinary Radiology and is a member of the American Veterinary Medical Association's Committee on Canine Hip Dysplasia.

Francis H. Fox, toastmaster unexcelable, continues to serve as a member of the Executive Board of the American Veterinary Medical Association, representing the northeastern states, and as one would anticipate, he is doing a superb job. Robert F. Kahrs is Secretary and Steve Roberts is President-elect of the Southern Tier Veterinary Medical Association. Kenneth McEntee is a member of the Advisory Board on Veterinary Specialties, American Veterinary Medical Association. Neil L. Norcross is a member of the Mastitis Research Committee of the National Mastitis Council and was elected a Fellow, American Academy of Microbiology.

Frederick B. McCashin attended an Orthopedic Course in Davos, Switzerland, on compression osteosynthesis as a means of fracture repair of long bones. He has a strong interest in orthopedic problems of large animals and is a very competent surgeon. Bob Kahrs, our popular teacher of epidemiology and infectious diseases, attended a graduate summer session in epidemiology at the University of Minnesota, and stays right out in front on the growing edge of veterinary epidemiology. We will not argue with you if you prefer the term *epizootiology*, but common usage makes *epidemiology* acceptable, except to etymologists and to those who can pronounce epizootiology without becoming cyanotic.

Henry O. Dunn is continuing with his cytogenetic studies on bovine chimerism, prenatal sex determination and ovarian tumors. Alex Winter has returned from his sabbatical leave in Dormstadt, Germany, and in

collaboration with Kenneth McEntee is probing deeply in the pathogenesis of vibriosis and allergic orchitis. Jack Tasker has determined that congenital hemolytic anemia in Basenji dogs is due to a deficiency of pyruvate kinase in the erythrocytes (similar to pyruvate kinase deficiency anemia in children). Bob Kahrs, Fred Scott and Sandy deLahunta have carried out some very interesting studies on the birth-defect inducing capacity of bovine virus diarrhea infection in pregnant cattle. Further, similar studies were carried out in cats by Scott and deLahunta, showing that the panleukopenia virus causes cerebellar aplasia and ocular defects in fetal kittens. Herbert Schryver, Harold Hintz, Jack Lowe, Peter Craig and Robert Whitlock have been studying calcium, phosphorus and nitrogen metabolism in horses. It has been essential to establish *normal* requirements, preparatory to studies of these elements in bone and joint diseases.

It has been our good fortune to have J. Thomas Vaughan join our faculty as Professor of Veterinary Surgery and Director of the Large Animal Hospital. Tom served on the faculty of Auburn University from 1955 to the time of his move to Cornell in February of this year, and holds both the D.V.M. and M.S. degrees from Auburn, having been graduated *summa cum laude*. He is an active diplomate of the *American College of Veterinary Surgeons* among other professional organizations. He has published a number of professional papers, especially in problems of equine lameness and equine surgery. It is just great to have him here.

Last year we reported to you that Donald S. Postle joined the faculty as Associate Professor of Veterinary Science, to participate in the Mastitis Control Program as well as in mastitis research, in cooperation with Neil Norcross. It is a privilege to report to you that he was elected *Veterinarian of the Year* for the State of Wisconsin by the Wisconsin Veterinary Medical Association for his work in *continuing education* for practicing veterinarians while he was on the staff of the University of Wisconsin. This recognition permits all of us to stand a bit taller and we share Betty's pride in her Don.

The New York State Mastitis Control Program has continued to provide service to the dairymen of New York State during this 24th year of its existence.

Steve Roberts, Director of the Program, was invited to present papers on mastitis control at the American Veterinary Medical Association Annual Convention in Las Vegas; the United States Animal Health Association Convention; The Agricultural Research Council Mastitis Conference in London, England; and the Symposium on Preventive Herd Health at the University of Pennsylvania.

Richard S. Guthrie, Supervising Veterinarian, was asked to serve as a member of the Mastitis Committee of the New York State Veterinary Medical Society, the United States Animal Health Association and the Farm Methods Committee of the New York State Association of Milk and Food Sanitarians.

The New York State Mastitis Control Program also provides for the

education of veterinary students in this troublesome disease problem. Steve Roberts, Dick Guthrie, Don Postle and Linc Field and Mrs. Harriet Emmette of the laboratory staff, provide lectures, demonstrations and field trips for our students.

A special *Mastitis Control Study*, patterned after a similar project currently in progress at the National Institute for Research in Dairying, Reading, England, has continued since July 10, 1967. The cooperative efforts of the New York State Mastitis Control Program of the New York State Veterinary College and the Department of Animal Science of the New York State College of Agriculture have been extremely fruitful. Twenty-seven herds involving over 1,750 head of Holstein dairy cattle housed in both stanchion and free-stall type barns were started on this experiment. An important segment of this mastitis control plan consisted of treating every quarter of every cow at the time of drying off with a highly effective antibiotic preparation in a slow-release base. This procedure tended to eliminate most of the established infections and aided in preventing new ones that commonly occur during the first few weeks of the dry period. Two of the original herds were dispersed, leaving a total of 25 remaining to complete the study. Results at the end of 30 months of this study showed a reduction in quarters infected from the initial 40% incidence to 7.5%. Seventeen herds were free of *Streptococcus agalactiae* and eight were free of *Staphylococcus aureus* infections. A significant increase in milk production was reported in all herds. It is hoped that this antibiotic preparation will eventually be approved by the Food and Drug Administration for general use by veterinarians and dairymen since there is no other proven effective dry-cow therapy presently available.

The Mastitis Control Program suffered two sad experiences during the year when Harold L. Brown, Director of the Earlville laboratory, was killed in an automobile accident just a few weeks prior to his retirement and then Harry C. Temple, Director of Laboratories, died suddenly at his home. They were fine and capable colleagues and we feel numbed by their deaths.

In the Department of Small Animal Medicine and Surgery, under the Chairmanship of Robert W. Kirk, a new fourth year, one-credit course in ophthalmology was established and taught in the fall term by Stephen I. Bistner, Clinical Ophthalmologist. George E. Ross, Jr., assumed responsibility for the three-credit introductory course in principles of surgery formerly taught in the Department of Large Animal Medicine, Obstetrics and Surgery. To broaden the students' exposure to a variety of competent teachers and supplement faculty expertise, outside lecturers were again invited to give one- and two-day concentrated courses in clinical cardiology and clinical endocrinology. Dr. Stephen J. Ettinger of the Animal Medical Center in New York City gave the course in cardiology and Dr. Bruce E. Belshaw, Research Investigator, Department of Medicine, the New York Hospital (Cornell University College of Medicine) gave the course in endocrinology. Timothy H. Brasmer presented the course material on thoracic surgery

and anesthesiology and Stephen I. Bistner lectured on liver diseases and blood disorders. George E. Ross, Jr., and Timothy H. Brasmer jointly presented the laboratory course in small animal surgical exercises.

Gary A. Bolton, who is a graduate of Iowa State University, was appointed Assistant Professor of Small Animal Medicine. His field of special interest is cardiology. He came to Cornell from the Animal Medical Center in New York City where he served as a resident in cardiology for three years.

Timothy H. Brasmer, Associate Professor of Small Animal Surgery and Director of the Intensive Care Unit, was elected to the American Board of Veterinary Surgeons at their meeting in Miami in February, 1970.

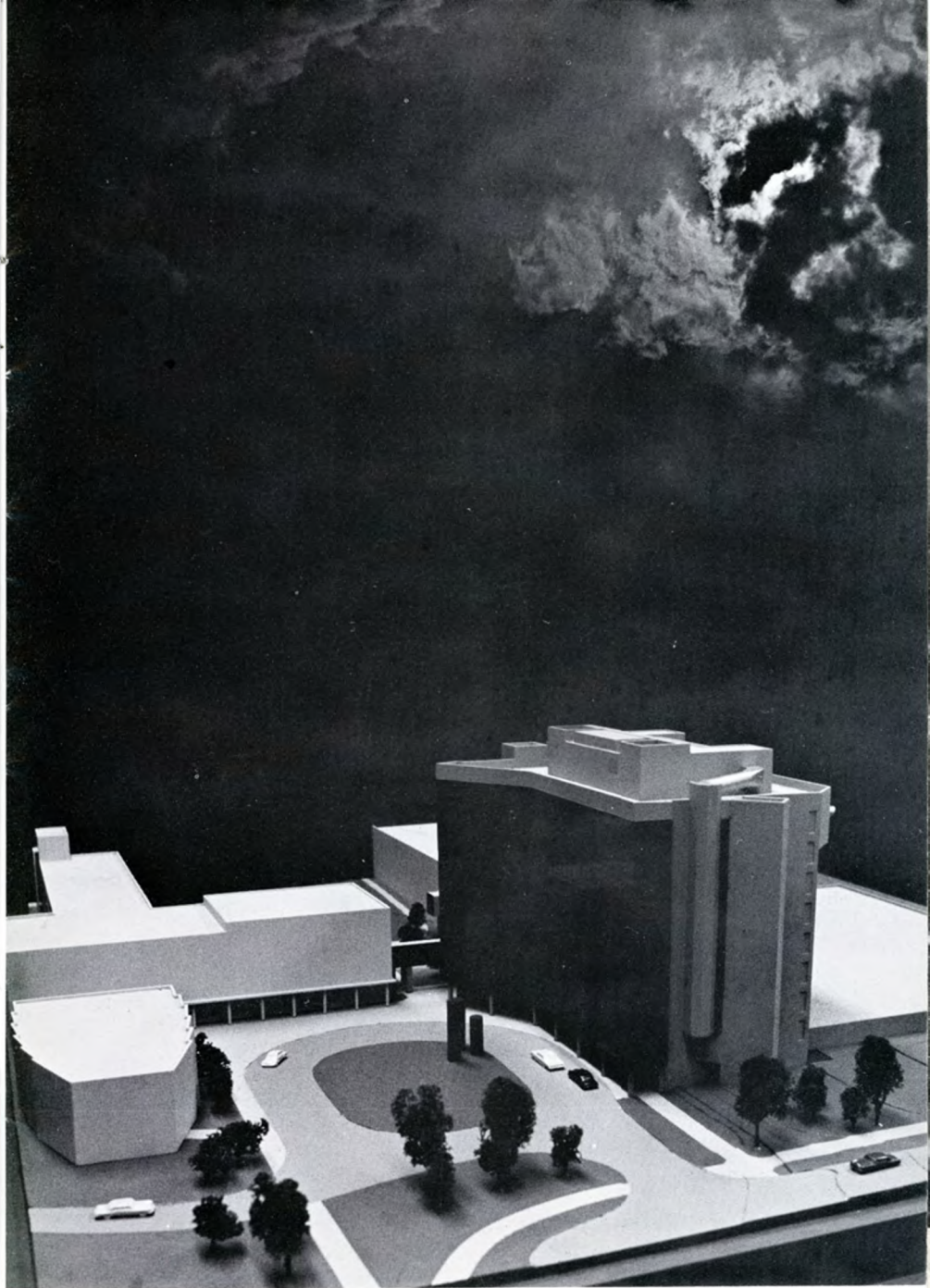
Robert W. Kirk, Chairman of the Department of Small Animal Medicine and Surgery and Director of the Small Animal Clinic and Hospital, has been appointed to a three-year term on the Seeing Eye Foundation Grant Advisory Council.

Lonnie J. Rich completed his Ph.D. work on urolithiasis of cats for his Ph.D. degree and then accepted a faculty position at Colorado State University. Catherine Fabricant of the Department of Microbiology will continue the basic research on the influence of viral agents on the feline urolithiasis clinical syndrome. Staff members of the Small Animal Clinic will continue to cooperate in the project by providing clinical material for the study.

Steve Bistner has been involved in some interesting studies on persistent pupillary membranes in Basenji dogs, on Horner's syndrome (ptosis due to paralysis of the cervical sympathetic), and on the severe anterior uveitis seen in bulls artificially infected with the infectious bovine rhinotracheitis virus. And there is more. All of our staff members seem to be busily active in research as well as teaching and an appreciable amount of public service!

Bob Kirk continues to be concerned with renal disease and skin disease; George Ross with gastric torsion in deep chested dogs and orthopedic surgery; Tim Brasmer with shock, neurosurgery, soft tissue surgery and orthopedic surgery. It is a busy and bustling place, as I am sure you can see.

A few years ago when anyone referred to someone on our faculty "chipping to windward on a lumpy course" we would immediately know that *that* someone just had to be our nautical enthusiast, John Bentinck-Smith. But you should see the number of followers that he has now! The McEntees have a superb houseboat; the John Whitlocks a power boat named *Poisson* that makes the Vanderbilt yachts look a bit shabby; the Sellers run a spinnaker on a magnificent schooner which I understand is named *Conference*; and the Ellsworth Dougherty clan pamper a sleek sloop that cuts the water as gracefully as a feather. As a matter of fact, those of us who do not even own a raft are just not "with it." Practically the entire staff has taken to the water. I do not know how to interpret this movement; just hope it has nothing to do with the habits of the furry polar lemmings which, when they become



Architects model showing 10-level multicategorical Research Wing. James Law Auditorium, left foreground. Clinics and hospitals behind the new wing.



The new 10-level multicategorical Research Wing. Model design by Ulrich Franzen and Associates, Architects. Programed and financed through the State University Construction Fund.



Dr. Alan J. Grout, Assistant to the Dean, and Mrs. Pauline R. Lawery, Administrative Aide examining the architects model of the Veterinary College. Alan is the key man in bringing this new research wing to fruition. Also note portraits of Seth D. Johnson and Myron G. Fincher, background.

overpopulated, move en masse to the sea and disappear! It has taken a long time to assemble a staff of the caliber that we have at the Veterinary College (almost 75 years) and we surely do not want to relinquish a single one to Neptune.

NEW CONSTRUCTION

Do you remember the story of Sisyphus, legendary king of Corinth who was condemned to roll a heavy stone up a hill in Hades, only to have it roll down again as it neared the top? Well, that is where we acquired the expression "as frustrating as Sisyphusian rock rolling." For a while we felt that we were doing a bit of Sisyphusian rock rolling in our hopes of having a new multicategorical research wing added to the College facilities, particularly since planning for this began about ten years ago. *But*, let me report to you with a feeling of much gratitude to our colleagues in the State University and in the Executive Division of State government that construction was begun on September 1, 1970, with an anticipated completion date of September 1, 1973. The administrative details of this are being handled by Alan J. Grout, working in close collaboration with our Controller, Mr. Arthur H. Peterson, who has been a strong supporter and wise counsellor in the planning of this important addition.

The building will be a ten-level structure providing additional research support space for all departments in the College. There will be two student laboratories, a lecture room for 80 people and a dining facility. Also, there will be a centralized laboratory animal facility supported by five fully equipped surgeries and the College's second intensive care unit. The approximate size will be 160,000 gross square feet. There will be special facilities for four electron microscope suites, and laboratories to accommodate 70 additional graduate students and 15 additional research associates. The building will be located south and west of the Small Animal Clinic.

STUDENTS

Our primary reason for existence as a College is to provide an academic environment and a teaching program that will produce neophyte veterinarians. And it always gives me a feeling of great pride to report that our students continue to be young people of real substance. The application rate is still running at about 450 per year, and we wonder what it might be if we had an active recruitment program! Last year we stretched the size of the entering class from 60 to 65 candidates. Of these, eight had the minimum of two years preveterinary college education. All the rest had three or more years of preveterinary work. Virtually the same pattern occurred in the class of 1973. Also, we now have eleven young women in the veterinary medical curriculum. Of these, five are in the class of 1974.

Our students have been willing to participate in the time-consuming and very important deliberations of the Committee on Curriculum, which has recommended to the faculty that the curriculum be revised



Olin Library, the clock tower on Uris Library and the Arts Quadrangle. That could be Bill Johndrew, Director of Student Administration, sitting on the block of granite on the left, but it isn't. 'Tis still the same guardian of the flock, Andrew Dickson White.



Donald W. Baker



A. Gordon Danks



H. Hugh Dukes



Herbert L. Gilman

Here they are: our great emeriti !



Ellis P. Leonard



Myron G. Fincher



Peter Olafson



Hadley C. Stephenson

to embrace a core of 15 hours, with satellite elective courses in all four years. One student representative from each class served diligently and effectively. We feel very well pleased with the excellent collaboration. Also, there is a student/faculty liaison committee, elected by the students and this too is a very effective coalition.

EMERITI

When A. Gordon Danks joined that esoteric society of emeriti, the number was swelled to eight; just enough to fill the oarsmen complement for one shell in the varsity crew. Clayton Chapman, Assistant Director of Athletics, said that he would be glad to have them if they will show up for practice. The only problem appears to be in getting them all into the rowing tank at one time. It is not a matter of their not fitting; it is a matter of luring them to Ithaca for practice. Donald Baker is still captivated by the charms of New Mexico, Hugh Dukes by Iowa and Mike Fincher by Virginia. And Herbert Gilman's biases favor Florida. Ellis Leonard, Peter Olafson, Hadley Stephenson and Gordon Danks have stayed quite close to home base in Ithaca during these past few months, and we do have the pleasure of seeing them occasionally. But their interests in the sports vary a bit, so it is questionable that we would succeed in convincing them to man even a four oar shell on the choppy waters of Cayuga. Anyway, we are glad that they are all in fine fettle. No group of men carry the Cornell name with greater distinction than they do.

NECROLOGY

*"From the glad working of thy busy life,
From the world's ceaseless stir of care and strife,
Into the shade and stillness, by thy Heavenly Guide
For a brief space thou hast been called aside."*

Word of the death of the following alumni reached us during the year:

Don A. Boardman '18, Taberg, New York
Harold L. Brown '33, Sherburne, New York
Clayton E. DeCamp '24, South Lansing, New York
Rodney A. Forsyth '46, Batavia, New York
Clarence J. Hoyt '09, Walden, New York
Arthur Lipman '44, Putnam, Connecticut
Morton Lown '10, Kingston, New York
Harry A. Lutvack '37, Massapequa, New York
Earl S. Markham '12, Constableville, New York
Robert D. Miller '54, Glens Falls, New York
Ralph G. Murch '34, Chelsea, Massachusetts
Marie Koenig Olson '37, Jamestown, New York
Joseph J. Regan '15, Utica, New York
Alfred Savage '14, Winnipeg, Canada

Earl D. Smith '20, Plainwell, Michigan
Jean V. T. Smith '20, South Norwalk, Connecticut
Harry C. Temple '29, Pine Bush, New York
Armand E. Trudeau '34, Newport, New Hampshire
Joseph J. Vara '14, Bonifay, Florida
Hendrik Versluis '35, Tremonton, Utah

POSTLUDE

It is that time of the year again when we become acutely aware of the circadian flight of days; when we look forward with hopeful anticipation to another fresh start, another new beginning, a clean new year; unblemished, undefiled. As we look forward to that new year, may I share with you an old time-transcending admonition called *Desiderata*, which was found in old Saint Paul's Church, Baltimore, dated 1692.

*"Go placidly amid the noise and haste and remember
what peace there may be in silence.
As far as possible without surrender, be on good terms
with all persons.
Speak your truth quietly and clearly; and listen to others,
even the dull and ignorant; they too have their story.
Avoid loud and aggressive persons; they are vexations to the spirit.
If you compare yourself with others, you may become vain and bitter;
for always there will be greater and lesser persons than yourself.
Enjoy your achievements as well as your plans.
Keep interested in your own career, however humble;
it is a real possession in the changing fortunes of time.
Exercise caution in your business affairs; for the world is full of trickery.
But let this not blind you to what virtue there is;
many persons strive for high ideals;
and everywhere life is full of heroism.
Be yourself. Especially, do not feign affection.
Neither be cynical about love; for in the face of all aridity
and disenchantment it is perennial as the grass.
Take kindly the counsel of the years, gracefully surrendering
the things of youth.
Nurture strength of spirit to shield you in sudden misfortune.
But do not distress yourself with imaginings.
Many fears are born of fatigue and loneliness.
Beyond a wholesome discipline, be gentle with yourself.
You are a child of the universe, no less than the trees and the stars;
you have a right to be here.
And whether or not it is clear to you, no doubt the universe
is unfolding as it should.*

*Therefore, be at peace with God, whatever you conceive Him to be,
And whatever your labors and aspirations, in the noisy confusion
of life, keep peace with your soul.
With all its sham, drudgery and broken dreams,
it is still a beautiful world.
Be careful. Strive to be happy."*

All good wishes for a fulfilling New Year!

Sincerely,

A handwritten signature in cursive script, reading "George C. Poppensiek". The signature is fluid and elegant, with a large initial "G" and a long, sweeping underline.

George C. Poppensiek