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ANNOUNCEMENT OF THE NEW YORK STATE VETERINARY COLLEGE 1920-1921

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This announcement is intended to give detailed information to prospective students in the New York State Veterinary College at Cornell University.

For general information concerning the University and its various colleges, the requirements for admission, etc., the General Circular of Information should be consulted. This and the other publications of Cornell University are listed on the last page of the cover of this pamphlet. Any of the informational publications there mentioned will be sent gratis and post-free on application to the Secretary of Cornell University, Ithaca, New York.

CALENDAR

First Term, 1920-1921

Sept. 17,	Friday,	Entrance examinations begin.
Sept. 22,	Wednesday,	Entrance examinations end.
Sept. 27-28,	Monday, Tuesday,	Registration of new students.
Sept. 29,	Wednesday,	Registration of matriculated students.
Sept. 30,	Thursday,	Instruction begins.
Oct. 19,	Tuesday,	Last day for payment of tuition.
Nov. —,	Thursday,	Thanksgiving recess of one day.
Dec. 22,	Wednesday,	Instruction ends at 1 p. m.
Jan. 6,	Thursday,	Instruction resumed at 1 p. m. } Christmas Recess.
Jan. 11,	Tuesday,	Founder's Day.
Jan. 29,	Saturday,	Instruction ends at 6 p. m.
Jan. 31,	Monday,	Final examinations begin.
Feb. 9,	Wednesday,	Final examinations end.

Second Term, 1920-1921

Feb. 12,	Saturday,	Registration of all students.
Feb. 14,	Monday,	Instruction resumed at 8 a. m.
Mar. 4,	Friday,	Last day for payment of tuition.
Apr. 6,	Wednesday,	Instruction ends at 1 p. m.
Apr. 14,	Thursday,	Instruction resumed at 1 p. m. } Spring Recess.
May 28,	Saturday,	Navy Day.
June 8,	Wednesday,	Final examinations begin.
June 16,	Thursday,	Final examinations end.
June 22,	Wednesday,	Commencement.

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NEW YORK STATE VETERINARY COLLEGE

FACULTY

- Jacob Gould Schurman, A.M., D.Sc., LL.D., President of the University.
Veranus Alva Moore, M.D., V.M.D., D.Sc., Professor of Comparative Pathology, Bacteriology, and Meat Inspection; and Dean of the College.
James Law, F.R.C.V.S., Emeritus Professor of Principles and Practice of Veterinary Medicine.
Simon Henry Gage, B.S., Emeritus Professor of Histology.
Pierre Augustine Fish, D.Sc., D.V.M., Professor of Veterinary Physiology, and Secretary of the Faculty.
Grant Sherman Hopkins, D.Sc., D.V.M., Professor of Veterinary Anatomy and Anatomical Methods.
Walter Long Williams, Professor of Obstetrics, and Research Professor in the Diseases of Breeding Cattle.
Dennie Hammond Udall, B.S.A., D.V.M., Professor of Veterinary Medicine and Hygiene.
Howard Jay Milks, D.V.M., Professor of Therapeutics and Small Animal Clinic.
James Nathan Frost, D.V.M., Professor of Veterinary Surgery.
Samuel A. Goldberg, A.M., Ph.D., D.V.M., Professor of Pathology.
William Arthur Hagan, M.S., D.V.M., Professor of Bacteriology and Parasitology.
Earl Sunderville, D.V.M., Assistant Professor of Veterinary Anatomy.
Charles Ernest Hayden, A.B., D.V.M., Assistant Professor of Veterinary Physiology.
Raymond Russell Birch, B.S., Ph.D., D.V.M., Superintendent of the Veterinary Experiment Station.
Henry Asmus, Assistant Professor of Horseshoeing.
Walter Denslow Way, D.V.M., Assistant Professor of Veterinary Medicine.
Charles Milton Carpenter, D.V.M., Instructor in Bacteriology.
Earle Budd Hopper, D.V.M., Instructor in Obstetrics.
James William Benner, D.V.M., Instructor in Special Research in Animal Diseases.
Horatio Luther Van Volkenberg, D.V.M., Instructor in Pathology.
Henry Patrick Noonan, D.V.M., Instructor in Obstetrics.
Hadley Carruthers Stephenson, Instructor in Materia Medica.
James West Fuller, Assistant in Diagnosis.
Clifford Deane Carpenter, Student Assistant in Pathology.
Helena Harriet Haight, A.B., Clerk of the College.
Frances B. van Zandt, Librarian of the Roswell P. Flower Library.
Lulu M. Williams, Assistant in the College Office.
- James Edward Creighton, A.B., Ph.D., LL.D., Dean of the Graduate School.
Henry Hiram Wing, M.S. in Agr., Professor of Animal Husbandry.
Benjamin Freeman Kingsbury, Ph.D., M.D., Professor of Histology and Embryology.
Arthur Wesley Browne, M.S., Ph.D., Professor of Inorganic and Analytical Chemistry.
Karl McKay Wiegand, B.S., Ph.D., Professor of Botany.
Elmer Seth Savage, M.S.A., Ph.D., Professor of Animal Husbandry.

CORNELL UNIVERSITY

Merritt Wesley Harper, B.Sc., M.S., Professor of Animal Husbandry.
 Benjamin Percy Young, A.B., Ph.D., Assistant Professor of Zoology.
 Stuart Deming Jackson, A.B., Instructor in Organic Chemistry.
 Walter Conrad Muenscher, A.M., Instructor in Botany.
 John Stephens Latta, B.S., Instructor in Histology and Embryology.
 Asa Emanuel McKinney, A.B., A.M., Instructor in Inorganic Chemistry.
 Rufus R. Humphrey, A.B., Assistant in Histology and Embryology.
 Lloyd Herman Schroeder, Assistant in Histology and Embryology.

NONRESIDENT LECTURERS FOR 1919-1920

B. H. Ransom, Bureau of Animal Industry.....	Washington, D. C.
J. K. Boshart	Camden
D. W. McLaury, Bureau of Animal Industry.....	Albany
W. G. Hollingworth	Utica
Langwell Frothingham	Boston

VETERINARY COLLEGE DIRECTORY

The President of the University, Jacob Gould Schurman, 2 Morrill Hall.
 The Dean of the Veterinary College, Professor V. A. Moore, 1st floor.
 Professor D. H. Udall, Medical Building.
 Professor Walter L. Williams, Room 2, s. e. corner, 1st floor.
 Professor Pierre A. Fish, Room 4, n. e. corner, 1st floor.
 Professor Grant S. Hopkins, Room 12, n. e. corner, 2d floor.
 Professor Veranus A. Moore, Room 13, s. w. corner, 3d floor.
 Professor H. J. Milks, Small Animal Building.
 Professor J. N. Frost, Room 1, s. w. corner, 1st floor.
 Professor S. A. Goldberg, Room 18, n. e. corner, 3d floor.
 Professor W. A. Hagan, 3d floor, Main Building.
 Assistant Professor E. Sunderville, Room 3, n. w. corner, 1st floor.
 Assistant Professor C. E. Hayden, Room 3, n. w. corner, 1st floor.
 Assistant Professor W. D. Way, Medical Building.
 Assistant Professor Henry Asmus, Farriery Building.
 Instructor C. M. Carpenter, Room 17, n. w. corner, 3d floor.
 Clerk of the College, H. H. Haight, 1st floor.
 Librarian, Frances van Zandt, Room 9, s. e. corner, 2d floor.
 Groom, Joseph Fisher, Cottage east of Main Building.
 Groom, Frank Spencer, Medical Building.
 Groom, R. E. Gibson, Small Animal Building.
 Assistant Groom, J. W. Ross.
 Teamster, Henry Fatula.

VETERINARY COLLEGE COUNCIL

President Schurman, chairman, Veranus A. Moore, Charles S. Wilson, C. Fred Boshart, William F. Pratt, J. du Pratt White, George A. Blauvelt, Horace White, Frank H. Miller, Thomas B. Wilson, Jared T. Newman, Pierre A. Fish, John C. Westervelt.

FOUNDATION

The New York State Veterinary College was established by act of the State Legislature in 1894: "There is hereby established a State Veterinary College at Cornell University," Laws of New York, 1894, p. 307. By action of the Board of Trustees of Cornell University, June 10, 1894, the location of the College upon the University Campus was authorized. It was further enacted that while the University does not undertake any financial responsibility for the buildings, equipment, or maintenance of the College, it does consent to furnish instruction upon such subjects as are or shall be in its curriculum, upon such terms as may be deemed equitable.

By further acts of the Legislature provision was made for the buildings, equipment, and maintenance of the College, and finally in 1897, by "An act to provide for the administration of the State Veterinary College, established by chapter 153 of the laws of 1894," the Trustees of Cornell University were entrusted with its administration.

OBJECTS OF THE INSTITUTION

As stated in the act to provide for the administration of the State Veterinary College: "The State Veterinary College, established by chapter 153 of the laws of 1894 shall be known as the New York State Veterinary College. The object of the said Veterinary College shall be: to control investigations as to the nature, prevention, and cure of all diseases of animals, including such as are communicable to man and such as cause epizootics among live stock; to investigate the economic questions which will contribute to the more profitable breeding, rearing, and utilization of animals; to produce reliable standard preparations of toxins, antitoxins, and other productions to be used in the diagnosis, prevention, and cure of diseases, and in the conducting of sanitary work by approved modern methods; and 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 sanitary science as applied to live stock and correlatively to the human family."

The New York State Veterinary College was therefore founded to raise the standard of veterinary investigation and instruction to the level of the most recent advances in biology and medicine. According to the thirteenth census of the United States (1910), the number of farm animals in the State, exclusive of poultry and pet animals, was 6,572,000 with a value of \$238,282,000. This gives some idea of the great financial interest at stake in the matter of live stock. The Year Book of the United States Department of Agriculture for 1916 gives the value of the live stock of the United States exclusive of poultry and pet animals at \$6,685,020,000.

Another consideration is that the normal, permanent fertilization of the soil is dependent upon the live stock kept, and that where there is a deficiency of animals, the productiveness of the land is steadily exhausted; therefore, the health and improvement of animals and the fostering of animal industry lie at the very foundation of our national wealth. Another and no less potent argument for the higher standard of veterinary education is its influence on

the health of the human race. With a long list of communicable diseases which are common to man and beast, it is to the last degree important that measures for the extinction of such contagion in our live stock should receive the best attention of the most highly trained experts.

To justify the liberality of the State in creating this seat of learning, it is the aim of the College to train thoroughly a class of veterinarians for dealing with all diseases and defects that depreciate the value of our live stock, and with the causes that give rise to them. It further aims, as far as it has the means and opportunity, to maintain a center of investigation looking toward discoveries in the nature of diseases, in therapeutics, and in the immunization of animals from contagion; and toward the production of biologic products to be employed in diagnosis, treatment, and immunization. So much has been discovered recently in these directions and present knowledge points so unmistakably to coming discoveries, that to neglect this field at the present time would be very unfortunate. Apart from discovery, the mere production of reliable diagnostic and therapeutic biological products is of great economic importance. Furthermore, it is the purpose of the College to be of as much assistance as possible to the practitioners of veterinary medicine.

The combination in one institution of educational facilities with scientific investigation, and the production of vaccines and serums to be employed in modern medical methods, are features that insure the best work in all departments, and the most exceptional advantages for the diligent student.

LOCATION

The New York State Veterinary College is located at Ithaca, on the Campus of Cornell University, fronting on East Avenue, and facing the University buildings. Electric cars on East Avenue convey students and visitors to any part of the city. Ithaca with its population of 16,000 is situated at the head of Cayuga Lake, two hundred sixty-three miles distant from New York City, on the lines of the Delaware, Lackawanna, and Western, and of the Lehigh Valley railroads. The University grounds are four hundred feet higher than the city and command a view of twenty miles of lake and valley.

BUILDINGS

James Law Hall (The Main Building), one hundred and forty-two by forty-two feet, and three stories high, overlooks East Avenue and an intervening park of two hundred and twenty by three hundred feet. The walls are of buff pressed brick, on a base of Gouverneur marble; window and door facings are of Indiana limestone and terra cotta ornamentations. On the first floor are the museum, the business office, and the offices of the Dean and of the professors of physiology, surgery, and obstetrics. The second floor contains a lecture room, a laboratory of physiology and urine analysis, reading room, library, and offices of professors. On the third floor are the offices and the laboratories of pathology and bacteriology.

Connected with the main building and forming its east wing, is a structure of ninety by forty feet and two stories high. This contains the anatomical laboratories and the lecture room of anatomy, physiology, and surgery. Its floor is of impermeable cement.

The second extension from the main building is the boiler and engine room where power is generated for heating and ventilation.

The Small Animal Building is seventy by forty-four feet and three stories high. This building is thoroughly fireproof, well lighted, and provided with modern plumbing. On the first floor are the waiting room, janitor's room, drug and instrument room, operating room with modern equipment, and general ward containing twenty-two kennels. The kennels are well lighted, roomy, well drained, and separated from each other by marble partitions. Besides these rooms there is a ward for infectious diseases which is entirely separated from the rest of the building.

The second floor contains the offices and private laboratories for the Department of Materia Medica and Small Animal Clinic, small wards for skin diseases, eye diseases, quarantine wards, and wards for cats, making a total number of forty-two kennels.

Upon the third floor are the lecture room, museum, research laboratory, and student's laboratory for materia medica and pharmacy.

The Medical Building is three stories high, and one hundred and sixty by forty-four feet on the ground floor. The ground floor contains a clinic hall, drug room, physical examination room, elevator office, wards for large animals, and a wagon-room for the ambulatory clinic. The first floor above, one hundred by forty-four feet with a side extension for the lecture room, contains wards for patients, lecture room, museum room, photographic room, offices, and research and student laboratories. The third floor contains living rooms for the groom, the student assistants, and the internes, and a large laboratory. The attic contains vermin-proof grain bins, and a storage room for hay, and communicates with the wards by means of vertical shafts. The stalls are built of iron and quartered oak with wide corridors for the accommodation of classes. The building is ornate in design and of modern construction; it is well lighted, fireproof, and heated throughout with steam; it has a modern system of plumbing and ventilation, and all animal wards are perfectly aired through large vertical shafts.

The Farriery, seventy by forty-four feet, and three stories high, is of the same type of construction as the medical building. On the ground floor are an isolation ward, horse and cattle wards, and a demonstration hall. These form a part of the clinical plant of the college. The floor above is fully equipped for the teaching of horseshoeing. It contains forges, shoeing stocks, laboratory desks and other equipment equal to that of the leading continental schools. The third floor is used for class rooms and a museum.

The Surgical Ward, thirty-one by one hundred feet, is furnished with box and other stalls, heating apparatus, baths, and all necessary appliances. The floor is of impermeable cement, and the ceilings of painted sheet steel. There is also a fodder room of twenty by thirty feet.

The Operating Theater for the surgical clinic is located at the south end of the patient's ward and is connected therewith. The building is well lighted and is provided with modern plumbing. There is a recovery room, in which the patients may recover from the effects of anæsthetics, connected with the operating table by an inclined plane, down which the patient may be conveyed. The clinic is well supplied with instruments and modern conveniences.

The Mortuary Building has an impermeable floor, walls of enameled brick and painted steel plate ceilings, and is fitted with every convenience for conducting post mortem examinations and preparing pathological specimens.

The Post Mortem Building is in the rear of the main building and is furnished with room for instruments, and with water, heater, etc. The lighting and equipment, and the facilities for demonstration have received special attention.

A cottage for the groom completes the list of State buildings erected for the Veterinary College. The equipment has been made very complete for both educational uses and research.

For a more detailed account of the equipment and of the facilities for instruction see Departments, Methods, and Facilities (pages 11-22).

ADMISSION

The entrance requirements to the New York State Veterinary College may be satisfied by either A or B as below:

A. By presentation of a Veterinary Student Certificate issued by the Education Department, Albany, New York.

The candidate wishing to satisfy entrance by A should apply directly to the New York State Education Department, Albany, N. Y., for a Veterinary Student Certificate. He should send to that Department official evidence of his qualifications to meet the requirements stated by the Department for a Veterinary Student Certificate.

Upon receipt of the Veterinary Student Certificate from Albany the candidate should file it together with an application for admission to the Veterinary College with the Registrar of Cornell University.

A student who is a candidate for the Veterinary degree must obtain from the Education Department a Veterinary Student Certificate at least three years before graduation. Prospective students are advised to avoid complications and delay by obtaining the Veterinary Student Certificate before entering the University.

B. By satisfying the Cornell University entrance requirements in 15 units, including English 3 units, a Foreign Language 3, History 1, Plane Geometry 1, Elementary Algebra 1, and Electives 6.

The candidate may satisfy B by presenting an acceptable high or preparatory school certificate, or by passing examinations of the Regents of the University of the State of New York, or of the College Entrance Examination Board, or of Cornell University, or by a combination of any of these methods.

The candidate should file his application and credentials with the Registrar of Cornell University at as early a date as possible. Blank forms and further information will be furnished by the Registrar upon request. A student satisfying entrance by B must, before the beginning of the second year, secure from the Education Department, as stated in A, a Veterinary Student Certificate and file the same with the Registrar of Cornell University.

Students preparing to enter the Veterinary College are advised to take biology and physics among their electives in high school work.

Admission to Advanced Standing. Applicants for admission to advanced standing as members of the second, third, or fourth year class, must present the necessary educational qualifications for admission to the first year class, and must

pass satisfactory examinations in all the work for which they desire advanced credit, or offer satisfactory certificates of the completion of this work in other schools whose entrance requirements and courses of study are equivalent to those of this college. No person will be admitted to any advanced class except at the beginning of the college year in September.

Graduates of veterinary colleges whose requirements for graduation are not equal to those of the New York State Veterinary College may be admitted provisionally upon such terms as the Faculty may deem equitable in each case, the applicant's previous course of study and attainments being taken into consideration. In this connection, attention is called to the legal requirements of academic and professional education for the practice of veterinary medicine in the State of New York. (See pages 8-9 and Appendix B.)

Admission to Graduate and Special Work. The ample facilities for graduate and special work in the New York State Veterinary College and in the allied departments in Cornell University, are open to graduates of this institution and of other colleges whose entrance requirements and undergraduate courses are equivalent. (See pages 8-9). For a course for practitioners see page 26.

REGISTRATION

At the beginning of each term (see calendar for exact date) the student must register with the University Registrar. After registering with the University Registrar, he must register the same day with the Secretary of the Veterinary Faculty, Doctor Fish, Room 4, first floor of the Veterinary College.

No student, after having been once admitted to the University, will be allowed to register after the close of registration day, except by special permission.

REQUIREMENTS FOR GRADUATION

In order to receive the degree of Doctor of Veterinary Medicine (D. V. M.) candidates must satisfy all the entrance requirements on pages 8 and 9, must successfully pursue the courses named in the following schedule of studies, must have paid all fees, and must have spent at least one year in residence.

SCHEDULE OF COURSES LEADING TO THE DEGREE OF DOCTOR OF VETERINARY MEDICINE (D.V.M.)

The work of the College is arranged to begin during the last of September and to close in June. This period is divided into two terms, see calendar page 2.

PRESCRIBED FOUR-YEAR COURSE

First Year	No. of Course	Credit 1st Term	Credit 2d Term	Total of Actual Hours
Chemistry	1	6	—	144
Botany	3	—	5	144
Anatomy	1	3	—	448
"	2	1	—	
"	3	3	—	
"	4	—	5	
Histology	6	3	4	216
Physiology, Lectures	10	3	—	96
" Recitations	11	—	3	
Military Science and Tactics	1	—	—	96
		19	17	1144
Second Year				
Zoology	1a	—	3	96
Anatomy	5	3	—	256
"	6	3	—	
Physiology, Recitations	12	2	—	32
" Lectures	13	—	2	32
" Laboratory	14	2	—	80
Pharmacology	20	2	2	64
Materia Medica	21	2	1	120
General Surgery	30	—	4	112
General Pathology, Recitations	40	2	—	32
" " Laboratory	40a	2	—	80
Bacteriology, Lectures	43	—	2	32
" Laboratory	43a	—	3	120
Physical Diagnosis	51	—	2	32
Military Science and Tactics	1	—	—	96
		18	19	1184
Third Year				
Animal Husbandry	1 and 2	3	3	128
Urine Analysis	15	—	1	40
Diseases of Small Animals	22	—	2	32
Small Animal Clinic	25	1	1	48
Surgical Exercises	31	1	—	48
Special Surgery	32	5	—	80
Consulting Clinic	34	1	1	48
Autopsies—By Appointment	47	—	—	—

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Third Year—Continued	No. of Course	Credit 1st Term	Credit 2d Term	Total of Actual Hours
Special Pathology	41	2	2	112
Infectious Diseases, Lectures	42	—	2	32
“ “ Laboratory	42a	—	1	40
Parasitology	44	3	—	72
Medicine	50	2	3	80
Physical Diagnosis	51	1	—	16
Ophthalmology	55	—	1	16
		19	17	792

Fourth Year

Embryology	9	2	—	56
Milk Hygiene	16	—	1	16
Materia Medica	23	2	—	32
Small Animal Clinic	25	1	1	48
Surgical Clinic	33	2	2	96
Consulting Clinic	34	1	1	48
Obstetrics	36	—	3	48
Diseases of the Genital Organs	37	—	2	32
Immunity	43b	2	—	80
Autopsies	47	1	1	48
Meat Inspection	48	—	1	16
Medicine	50a	3	2	80
Horseshoeing	52	1	1	80
Ambulatory Clinic	53	1	1	48
Hygiene	56	—	1	16
Elective		3	2	96
		19	19	840

DEPARTMENTS, METHODS, AND FACILITIES

In addition to the departments of the Veterinary College proper, the resources of the entire University are at the disposal of the College by virtue of the action of the Board of Trustees at the time when authorization was given for its location on the Campus of Cornell University (p. 5 under Foundation). Among the facilities of the University of especial value to the Veterinary College may be mentioned the museums of vertebrate and invertebrate zoology (including entomology), of agriculture, of botany, and of geology. The University Library, with its 500,000 bound volumes, 62,000 pamphlets, and 2,000 current periodicals and transactions of societies is likewise as freely open to Veterinary College students as to the other University students (see also Flower Library).

The departments with their special equipments, facilities, and methods, are given approximately in the order in which the subjects are pursued in the veterinary curriculum.

CHEMISTRY

The following are the courses pursued by veterinary students and must be taken in the order here indicated.

1. **Introductory Inorganic Chemistry.** Lectures, recitations, and laboratory. Repeated in second term, credit six hours.

1a. Lectures. M W F, 9, (or M W F, 11), Professor BROWNE and Mr. GRIFFIN. Rockefeller A.

1b. Recitations, F, 8 (one hour a week to be arranged), and laboratory M F, 2-4:30; M W, 8-10:30; T Th, 2-4:30; W, 2-4:30; and S, 8-10:30. Mr. MCKINNEY and Messrs. COREY, LINDSLEY, FLINT, MARTIN, LANG, LAUBENGAYER, and HELPS.

Entrance credit in chemistry does not carry with it University credit in course 1. If a student entering the University from a preparatory school desires credit in course 1 he must pass an examination set by the Department of Chemistry. This examination is held both in New York City and in Ithaca on the same day in September as the entrance examination. University credit in course 1 that is obtained by passing this examination does not carry with it entrance credit in chemistry.

Examinations for those who were unavoidably absent from the final examination in course 1 will be held at 2 p. m. on the day before instruction begins in the fall.

32. **Elementary Organic Chemistry.** First term, credit four hours. Lectures and laboratory work, four hours; lectures alone, three hours. Lectures, oral and written reviews, and laboratory practice. M W F, 12, Rockefeller Lecture Room No. 104; Laboratory, Th, 2-5. Messrs. JACKSON, CORNWELL, BEDIENT, and KLEIN.

This optional course may be taken by students in veterinary medicine who have satisfactorily completed course 1 in chemistry.

MICROSCOPY, HISTOLOGY, EMBRYOLOGY

Professor: B. F. KINGSBURY.

Instructor: JOHN S. LATTA.

Assistants: RUFUS R. HUMPHREY, LLOYD H. SCHROEDER.

This department offers instruction in the theory and use of the microscope and its accessories; in vertebrate histology, in vertebrate embryology, and in histologic and embryologic technique; and opportunities for research in all of these subjects. For all the courses the department is well supplied with the best modern apparatus.

The rooms for the use of this department are on the basement and second floors of Stimson Hall. They consist of a large general laboratory, a research laboratory, preparation room, and laboratories for the instructing staff, where also special demonstrations of difficult subjects are given to small groups of students.

In the courses outlined below, the student gains a practical knowledge of the normal structure of the tissues and organs of the animal body by the direct study of them in the laboratory. From time to time, the ability of the student to recognize the normal structure is tested by the identification of unlabelled preparations. The laboratory work is supplemented by recitations, reviews, and lectures covering the general aspects of the subject.

6. **Microscopy and Histology.** Throughout the year, credit seven hours. Required of first year students. The exercises each week are as follows: first term, laboratory work, T, 10-1, lecture, W, 8, or recitation, M, 8; second term.

laboratory, W, 10-1, F, 10-1, S, 8-11. Lecture, Th, 8. Instructor LATTI and assistants.

Microscopy. The aim is to give a working knowledge of the theory and use of the microscope and its accessories, methods of mounting microscopical specimens, etc.

Histology. This includes the study of the fine anatomy of the animal body, and also the fundamental methods of histologic investigation and demonstration.

9. Embryology. First term, credit two hours. Required of seniors. The exercises each week are as follows: laboratory work, S, 10-12; lecture, F, 10. A study of the development of the domestic animals, (chiefly common fowl, pig, sheep, cow, horse), the fetal membranes and placenta, together with a general consideration of sex, inheritance, and the laws of development, maternal impressions, etc.

ANATOMY

Professor: G. S. HOPKINS.

Assistant Professor: EARL SUNDERVILLE.

The instruction in anatomy is by lectures, recitations, and laboratory work, the last being by far the most important. The objects of the lectures are to present facts of general morphology as related to the horse and other domestic animals; to direct attention, as far as possible, to the correlation of structure and functions of the various organs of the body; and to emphasize the anatomical relations of those parts most subject to surgical operations. The main reliance however, is placed upon the work done in the laboratory. Thorough, practical knowledge of anatomy can be acquired in no other way, and every student, before taking his final examinations, will be required to dissect all parts of the horse or the ox, and such parts of other domestic animals as may prove most expedient.

The courses in anatomy extend over two years. The first year is devoted to the study of bones, joints, muscles, and certain of the viscera; the second year, to the vascular and nervous systems and to the organs of special sense.

In the study of osseous, muscular, digestive, and respiratory systems, the skeletons in the laboratory and the Auzoux models afford valuable assistance. In the museum there are accumulating series of specimens which illustrate, in a typical manner, some of the more important anatomical features of the various domestic animals.

The city and the surrounding country supply abundant anatomical material of almost endless variety; horse, ox, sheep, and swine, dog, cat, rabbit, and guinea pig, both adult and in all stages of fetal development.

1. Comparative Osteology. First year, first term, credit three hours. Lectures, T, 9. From September to February there will be six periods of laboratory work, M T F, p. m., W, 11-1, Th, 9-12, S, 10:30-1. Professor HOPKINS and assistants.

2. Arthology. First term, credit one hour. This course immediately follows course 1. Professor HOPKINS and assistants.

3. Myology and Abdominal Viscera. First term, credit three hours. In this course the dissection of muscles is begun. Lectures, laboratory hours, etc., the same as in the preceding courses. Professor HOPKINS, Assistant Professor SUNDERVILLE, and assistants.

4. **Myology, Thoracic and Abdominal Viscera, Lymphatic System and Organs of Special Senses.** Second term, credit five hours. Lectures and written reviews, M, 10. One or more weekly recitations. Laboratory work, M, 11-1, T, 2-5, Th, 11-1, W, 2-5. Professor HOPKINS, Assistant Professor SUNDERVILLE, and assistants.

5. **Blood Vessels and Nerves of the Arm and Leg.** Second year, first term, credit three hours. Laboratory work. M Th F, p. m., F and S, 9-12:30. Professor HOPKINS, Assistant Professor SUNDERVILLE and assistants.

6. **Blood Vessels and Nerves of the Head; the Central Nervous System and Genital Organs.** First term, credit three hours. Laboratory hours the same as in course 5. Professor HOPKINS, Assistant Professor SUNDERVILLE, and assistants.

7. **Surgical Anatomy.** Second term, hours to be arranged. The regions of the body most subject to surgical operations will be studied with special reference to operative surgery.

Open to those who have completed the required courses in anatomy and to practitioners. Professor HOPKINS and Assistant Professor SUNDERVILLE.

8. **Advanced Anatomy.** Two or more hours. Laboratory periods in the first term, to be selected from the following: M T Th F, p. m., S, a. m.; and in the second term the following: M T Th F, p. m., S, a. m. The work will be on the osseous, vascular, and nervous systems; the viscera and genito-urinary organs of carnivora; the viscera, genito-urinary organs, and the lymphatic systems of ruminants. Certain regions of the horse of special surgical importance may also be reviewed. Professor HOPKINS and Assistant Professor SUNDERVILLE.

PHYSIOLOGY

Professor: P. A. FISH.

Assistant Professor: C. E. HAYDEN.

It is the aim of this department to select from a wide field of important topics, those which will be of greatest use to the student in comprehending the vital processes of the animal body. Without a complete understanding of the normal functions, it is useless to attempt progress in the proper conception of diseased conditions.

The proper correlation of work in the laboratory and in the recitation and lecture room, it is believed, will afford to the student a more comprehensive grasp and understanding of the perspective and symmetry of the subject than can otherwise be obtained.

The lectures are illustrated with lantern slides, charts, histological preparations, dissections, and practical demonstrations.

The laboratory is located on the second floor of the Veterinary College. It is well lighted and ventilated, and equipped with suitable apparatus. The equipment includes kymographs, induction coils, sphygmographs, cardiographs, circulation schemes, tambours, centrifuges, microscopes, and other apparatus for complete and satisfactory work.

Every encouragement is offered to those properly fitted to pursue their work beyond that given in the regular curriculum.

10. **The Physiology of the Nutrition and Secretion of the Domesticated Animals.** First year, first term, credit three hours. M W F, 10. Professor FISH.

11. **Physiology Recitations.** Second term, credit three hours. T Th F, 9, or M, 8, T Th, 10. Professor FISH and Assistant Professor HAYDEN.

12. **Physiology Recitations.** Second year, first term, credit two hours. T F, 8; or T, 9, S, 8. Professor FISH and Assistant Professor HAYDEN.

13. **The Physiology of the Muscular and Nervous Systems.** Second year, second term, credit two hours. M W, 10. Assistant Professor HAYDEN.

14. **Physiological Laboratory.** A portion of the course is devoted to chemical physiology. Artificial digestive juices are tested upon the various kinds of food-stuffs by the students and careful notes kept of the various changes. Milk, bile, and blood are also studied, with a spectroscopic examination of blood. A portion of the work is devoted to a study of the phenomena associated with the circulatory, respiratory, muscular, and nervous systems. Students are required to obtain and preserve graphic records of these phenomena, whenever possible. Certain experiments requiring special apparatus and special care are performed as demonstrations by the instructors, with the assistance of the students when possible. First term, second year, five hours a week. M, 11-1 and T, 10-1; or T, 2-5 and Th, 8-10. Professor FISH, Assistant Professor HAYDEN, and assistants.

15. **Urine Analysis.** Laboratory work devoted to the comparative study of urine. Examinations are made of human urine and that of the domesticated animals, especially the horse. In addition to the chemical examination some attention will be devoted to a microscopic study of urinary deposits. Third year, second term, three hours a week. F, 10-1; or S, 10-1. Professor FISH, Assistant Professor HAYDEN, and assistants.

16. **Milk Hygiene.** Recitations and demonstrations. Fourth year, second term. S, 9-11, or 11-1. Professor FISH.

17. **Advanced Physiology.** This course will be adapted to the needs of the students and will consist principally of laboratory work supplemented by such reading and reports as may be necessary. Five or more hours a week. Professor FISH and assistants.

MATERIA MEDICA AND SMALL ANIMAL CLINIC

Professor: H. J. MILKS.

Instructor: H. C. STEPHENSON.

The instruction in pharmacology consists of class room and laboratory work. In pharmacology the work includes not only the materials of medicine, but also their preparation, use, and physiological actions. Allowing for certain exceptional differences, there is in general a resemblance in the action of drugs in the lower animals and in human beings. The clinics furnish abundant material for the study of applied therapeutics and of the action of the different drugs.

20. **Pharmacology.** A study of the actions and uses of the various drugs and their preparation. A varied collection of the crude drugs and their official

preparations is available. Two lectures or recitations each week. First term, M W, 10; second term, T, 8, F, 9.

21. **Materia Medica and Pharmacy Laboratory.** The work in this course consists of the study of a selected group of inorganic drugs and of certain crude organic drugs and their official preparations, and in making pharmaceutical preparations such as syrups, emulsions, spirits, liniments, tinctures, fluid extracts, extracts, ointments, pills, etc. One period will be used for demonstrating the action of the most important drugs. In his study the student is required to write concise notes on the physiologic action of the drugs examined and to make tests of their incompatibility. In addition to this, each student will have practical experience in writing and compounding prescriptions. The importance of a discriminating and accurate system for dispensing medicines is thoroughly emphasized. First term, five hours a week. W, 11-1, and Th, 10-1; or M, 11-1, and T, 10-1. Second term, two hours a week. M, 11-1; W, 11-1. Professor MILKS and Instructor STEPHENSON.

22. **Diseases of the Small Animals.** This course deals principally with canine and feline diseases. Two lectures or recitations throughout the second term of the third year. M, 9; W, 10. Professor MILKS.

23. **Recitations in Materia Medica and Therapeutics.** Fourth year, first term. T, Th, 9. Professor MILKS.

24. **Advanced Work.** This course will consist principally of laboratory exercises on the physiologic action of drugs on animals and will be supplemented by collateral reading and reports. Five or more hours a week. Professor MILKS.

Clinic for Small Animals. In this clinic, dogs and cats form the majority of patients. The students have close supervision of the cases; they compound and administer medicines and assist in the surgical operations.

25. **Small Animal Clinic.** Six actual hours a week throughout the third and fourth years. Daily, 2-3 p. m. Professor MILKS and Instructor STEPHENSON.

ZOOLOGY

1a. **Elements of Zoology.** Second year, second term, credit three hours. Assistant Professor YOUNG and Instructor ———. Lecture, Th, 10, McGraw 5; laboratory, T Th, 2-4:30, McGraw 2b.

An elementary study of the principles of zoology, the adaptations of animals to mode of life, the classification of the larger and economic divisions, and the zoology of domestic animals. Laboratory fee, \$4.50.

COLLEGE OF AGRICULTURE

1 and 2. **Course in Feeding and Breeding.** For students in the New York State Veterinary College. Throughout the third year, credit three hours each term. Two lectures and one practicum each week. Animal Husbandry Building. First Term: Lectures, W F, 10, Practice, W, 11. Professor SAVAGE. Second Term: T Th, 9, Practice, W, 11-1. Professor WING.

The general principles of breeding and feeding domestic animals are taught, with practice in the formulation of rations.

3. **Veterinary Botany.** First year, second term, credit five hours. Lectures, M W, 9, Stone Hall. Laboratory, M, 2-4:30; F, 2-4:30; T, 11-1, Stone Hall. Mr. MUENSCHER.

A course designed to acquaint the student with those facts about plants of special value to the veterinarian. Special emphasis is placed on forage plants, poisonous plants, weeds, and plants used in medicine. Laboratory fee, \$5.

SURGERY

Professor: J. N. FROST.

Instructor: J. G. TOWNSEND.

The instruction consists of class room and laboratory work designed to afford symmetrical training for practice.

CLASS-ROOM WORK

Course 30 (see courses, pages 18-19), General Veterinary Surgery, with Department of Pathology and Bacteriology (General Pathology), and Course 40, and Course 31 of Surgery (Surgical Exercises), constitute a complementary group intended to impart a general knowledge of the principles of surgery, surgical pathology and therapeutics, and operative technique.

Course 32, a total of eighty-five lectures and recitations, is devoted to the surgery of the various regions of the body.

The College possesses an extensive collection of surgical instruments and apparatus of home and foreign make, illustrating the history of veterinary surgery as indicated by the means employed in the cure of diseases.

The College has acquired since its foundation a very extensive pathologic collection illustrative of surgical diseases to which has been added from the surgical and obstetrical clinics a very large amount of material of great value for teaching purposes. Further important additions are made by veterinary practitioners.

The surgical collection is especially rich in specimens illustrating the diseases of the teeth.

CLINICS AND LABORATORY WORK

The laboratory work in the Department of Surgery includes Surgical Exercises and Clinics and Obstetrical Exercises.

The course in surgical exercises comprises seventeen periods of three hours each, in which the student is required to perform all the important operations on horses and cattle. The animal for a given exercise is placed under general anæsthesia, which is maintained until the close of the period, when the subject is destroyed. The maintenance of chloroform anæsthesia for three consecutive hours gives to the student valuable experience in the technic of general anæsthesia, for which there is a constantly increasing demand. Strict method is enforced in relation to asepsis and antisepsis, arrest of hemorrhage, suturing, and dressing, so that while acquiring skill and a knowledge of the appearance, resistance, and general character of living tissues, the student also forms proper habits in surgical procedure.

CLINICAL SURGERY OF THE LARGER ANIMALS

M W F, 11-1, first term and second terms. One year. Students in charge of cases are required to give necessary daily attention.

The surgical building has a thoroughly modern equipment in every respect. There is a spacious operating room fitted with operating table, stocks, and other

conveniences, a commodious recovery room for chloroformed animals, and other accessory rooms for instruments, drugs, and other necessities. The entire structure is planned to secure the highest efficiency in aseptic and antiseptic surgery. Senior students assist regularly in the surgical operations.

General and local anæsthetics are regularly used in painful operations, and the student is taught to eliminate as far as practicable the element of pain in surgery. Instruments and apparatus of the most approved pattern are kept directly at hand in the operating room, and the student becomes familiar with their good and bad points by actual use.

Special apparatus for investigation is supplied as needed. Advanced students are called upon to assist in the various investigations, and thus become not only more familiar with surgical manipulations, but also inspired to study methodically and effectively the many questions in surgical pathology and therapeutics. They also become better prepared to cope promptly and properly with the many atypical cases constantly occurring in general practice.

30. General Surgery. Second term, second year. Four recitations or laboratory periods a week. T Th, 9, Th or S, 11, or M, 3, T, 3. Professor FROST.

Prerequisite courses 1, 2, and 3 in anatomy, course 10 in physiology, course 6 in histology and course 40 in general pathology.

31. Surgical Exercises. Three hours a week of laboratory work in surgical operations upon anæsthetized animals. Third year, first term. Th, 10-1. or T, 10-1. Professor FROST and Dr. TOWNSEND.

32. Special Surgery. Third year, first term. Five lectures or recitations a week. M T W Th F, 9. Professor FROST.

33. Surgical Clinics. Six actual hours or more a week throughout the fourth year. M W F, 11-1, first term. M W F, 11-1, second term. Professor FROST and Dr. TOWNSEND.

Prerequisites, courses 30 and 31.

34. Consulting Clinic. Six actual hours a week for four terms. Daily at 2 p. m. Professor FROST and Dr. TOWNSEND.

OBSTETRICS AND DISEASES OF BREEDING CATTLE, JURISPRUDENCE

Professor: W. L. WILLIAMS.

Instructors: E. B. HOPPER, H. P. NOONAN.

35. Jurisprudence. A series of eight lectures is given during the second term of the third year dealing with the general responsibilities of veterinarians to the public, to stock owners, and to professional colleagues. The course deals largely with the ethics of veterinary practice and suggestions for beginners regarding the general features of veterinary practice. Some of the more general features of the laws of interest to veterinarians are discussed.

Obstetrics and Research in the Diseases of Breeding Cattle. The laboratory work in obstetrics consists in part of obstetric exercises, taught conjointly with surgical exercises as a part of Course 30 (see page 18). Clinical instruction in obstetrics is given in Courses 34, Surgical Clinics (page 18), and 53, Ambulatory Clinic (page 22).

36. **Obstetrics.** Three lectures or recitations a week in the second term of the fourth year. M T W, 10. Professor WILLIAMS. Prerequisite course 30.

It is aimed in this course to give a general survey of the subject of obstetrics, and to include a thorough consideration of the diseases of the genital organs including sterility and abortion.

37. **Diseases of the Genital Organs of Cattle, Sterility, Abortion.** Two lectures or recitations a week in the second term of the fourth year. Th F, 10. Professor WILLIAMS.

Obstetric exercises are given by appointment throughout the year. For this work a specially constructed apparatus, or "phantom," is employed in such a manner as to closely simulate actual working conditions in obstetrical practice. Newly born calves are procured, killed, and so placed in the apparatus that the various corrections of position and embryotomic operations may be carried out by the student under the direction of the instructor in charge.

Opportunities for Research. The activities of the department, aside from the instruction work indicated in Course 36, are devoted to research work in connection with the diseases of breeding cattle, especially with the phenomena of sterility and abortion in animals of breeding age and of those diseases of new-born calves having intimate relation to the diseases of the genital organs of cows. Opportunity is afforded for participation in the investigations by graduate students having acceptable preparation.

COMPARATIVE PATHOLOGY, BACTERIOLOGY, AND MEAT INSPECTION

Professors: V. A. MOORE, S. A. GOLDBERG, W. A. HAGAN.

Instructors: C. M. CARPENTER, H. L. VAN VOLKENBERG.

Assistant: J. W. FULLER.

Student Assistant: C. D. CARPENTER.

The instruction in pathology and bacteriology is given by means of lectures, recitations, and laboratory work. The laboratory work in pathology comprises examinations of gross specimens, autopsy work, and the microscopic examination of morbid tissues. Opportunity is offered for more extended work both in technique and in the study of pathological histology. For this highly important work the laboratory is especially well equipped.

The bacteriological laboratories are well equipped with modern apparatus. The students are, under proper supervision, instructed in the technique necessary for a practical working knowledge of bacteriology. The more important pathogenic bacteria are studied and methods of diagnosing the infectious diseases of animals receive careful attention. The various biological reactions of importance in diagnosis, and the more important biological products used in diagnosis and treatment are given special attention in the course in immunity.

For those who wish to do advanced work in any of these subjects excellent facilities are afforded. As the College is constantly investigating outbreaks of disease among animals in the state, an abundance of working material is assured. This enables the student to come into touch with practical work in bacteriological diagnoses.

It is the aim of the department to drill the students, by means of actual work, in the technique necessary for them to apply successfully in their future profes-

sional duties the knowledge acquired in the study of pathology and bacteriology. To this end the courses of instruction have been carefully arranged, and for this purpose the laboratories have been equipped.

A seminary for graduate and advanced students in the department is held in the department each week at 5.00 p. m. on a day to be arranged.

40. **General Pathology.** Second year, first term, credit two hours. Prerequisites, normal histology and at least one year's work in anatomy and physiology. Recitations, M W, 9. Dr. MOORE.

40a. **General Pathology Laboratory.** Two hours. Section I, W, 11-1, Th, 10-1; Section II, T, 2-5, Th, 8-10. Dr. GOLDBERG.

41. **Special Pathology.** Third year, first and second terms, credit one hour. Prerequisite, course 40. One lecture. Dr. GOLDBERG. First term, F, 8; second term, Th, 10.

41a. **Special Pathology Laboratory.** One hour. First term, F, 10-12:30 or S, 10:30-1; second term, T, 11-1 or Th, 11-1. Dr. GOLDBERG.

42. **Pathology of Infectious Diseases.** Third year, second term, credit two hours. Open to students who have taken 40 and 41, and have taken or are taking

43. Recitation, W F, 9. Dr. MOORE.

42a. **Laboratory.** One hour. Section I, M, 11-1; Section II, S, 8-10. Dr. GOLDBERG.

43. **Bacteriology.** Second year, second term, credit two hours. Open to students who have taken or are taking course 6 in microscopy or its equivalent. Lectures, M W, 9. Dr. HAGAN.

43a. **Bacteriology Laboratory** Three hours. Section I, M, 2-4:30, W, 11-1, F, 10-1; Section II, T, 10-1, Th, 11-1, S, 8-11. Dr. HAGAN. Students outside the veterinary college desiring to register in the course must first apply to the department.

(The lectures may be taken as a two-hour course.)

44. **Parasites.** Third year, first term, credit two hours. Lecture, F, 11, recitation, W, 8. Dr. HAGAN.

44a. **Parasites Laboratory.** One hour. Sec. I, M, 3-5:30; Section II, S, 8-10:30. Dr. HAGAN.

45. **Research in Pathology and Bacteriology.** Laboratory work. Prerequisites, courses 40 and 43. Drs. MOORE, GOLDBERG, and HAGAN.

45a. **Haematology.** Second term, credit two hours. One lecture and one laboratory period a week. Hours by assignment. Dr. GOLDBERG.

46. **Laboratory Methods of Diagnosis.** Prerequisites, courses 40 and 43. Instruction by appointment in the application of methods used in histology, pathology, and bacteriology for the diagnosis of general and specific diseases. Dr. HAGAN.

47. **Autopsies.** Throughout the junior and senior years. Credit one hour each term in senior year. Dr. GOLDBERG.

48. **Meat and Dairy Inspection.** Fourth year, second term, credit one hour. Lecture, Th, 9. Dr. MOORE.

49. **Immunity.** Fourth year, first term, credit two hours. Lecture, T Th, 12. Dr. MOORE.

VETERINARY MEDICINE

Professor: D. H. UDALL.

Assistant Professor: W. D. WAY.

The course in veterinary medicine, principles and practice, extends over the last two years of undergraduate study, the subjects of the second year being distinct from, and complementary to, those of the first. It includes the constitutional dietetic and toxic affections and the non-infectious maladies of the different systems of organs—digestive, respiratory, circulatory, urinary, cutaneous, and visual—of the various genera of domestic animals. The wide scope of the course, covering as it does the varied manifestations of a given morbid condition in all domestic animals in turn, the complications in each, caused by constitution, environment, utilization, microbial infection, etc., and the application of prophylactic and therapeutic measures to all in turn, gives a breadth and soundness of view which should render the student a reliable and skillful veterinary pathologist, physician, and sanitarian.

The course on contagious diseases deals with the general subject of infection and contagion; the microbiology of diseases in which micro-organisms constitute the essential factor; the accessory and restrictive environment, such as condition of soil, water, air, climate, culture, season, weather, animal industries, trade, migration, war, consumption of animal food, etc.; the diagnosis of the different plagues; the various methods of suppression by the individual owner, the municipality, town, county, state, or nation; and the exclusion of pestilences from a country. The transmissibility of each contagious disease to different genera of animals, from animal to man, and from man to animal, together with the susceptibility of each genus to immunization and the best known means of securing this, receives due attention.

Enzootic diseases are carefully studied, and the various causative factors in location, environment, and in constitutional or racial susceptibility are fully dealt with, as subsidiary to prevention and treatment.

Our proximity to the city and to a well stocked agricultural country tends to secure a greater variety of patients than can be had in a large city remote from country flocks and herds. Students take charge of individual cases in the hospital and ambulatory clinic and keep a record of each case with treatment. The course also includes instruction in diagnosis. Through the medium of laboratory guides students are expected to acquire a methodical system of examination by repeated systematic observations on both normal and diseased animals. The work involves the use of various special diagnostic methods taught in other laboratories of the College, such as examination of the blood, urine, and feces, the application of sero-diagnostic methods, etc.

Ambulatory Clinic. An ambulatory clinic or out-clinic has been established for the purpose of giving instruction to students under conditions identical with those encountered in private practice.

Proper conveyances and equipment have been provided and an opportunity offered for observing such diseased farm and dairy animals as cannot be entered in the clinics at the College. The student thereby not only has an opportunity to see cases not readily brought to the college clinic, but also assists in handling cases in the same manner and under the same environment as is required of the country practitioner.

As the vicinity of Ithaca is largely devoted to dairying, valuable clinical material relating to obstetrics and the diseases of dairy cows is available and extensively used.

50. **Veterinary Medicine, Principles and Practice.** Lectures or recitations. Third year, first term. T Th, 8; second term, M W F, 8. Professor UDALL or Dr. WAY.

50a. **Veterinary Medicine, Principles and Practice.** Fourth year, first term, M W F, 8; second term, T Th, 8. Professor UDALL or Dr. WAY.

51. **Physical Diagnosis.** Two recitations or lectures a week. Second year, second term, credit one hour. W Th, 8. Third year, first term, M, 8. Dr. WAY.

52. **Horseshoeing.** Lecture and laboratory. Fourth year, first term. Sec. I, T, 10-12, Th, 10-12; Second term, T, 11-1, Th, 11-1. Assistant Professor H. ASMUS.

53. **Ambulatory Clinic.** Professor UDALL and Dr. WAY.

55. **Ophthalmology.** One lecture or recitation a week, third year, second term. T, 8. Dr. WAY.

56. **Hygiene.** One lecture or recitation a week, fourth year, second term. F, 8. Dr. WAY.

SPECIAL LECTURES

During the year, lectures on special topics in medicine will be given by eminent practitioners and teachers of veterinary medicine. These will form a part of the instruction in this department.

MILITARY SCIENCE AND TACTICS, AND PHYSICAL TRAINING

All men in the first two years of undergraduate courses must take, in addition to the scholastic requirements for the degree, three hours a week in the Department of Military Science and Tactics. This department is a unit of the Reserve Officers' Training Corps of the United States Army. The students are organized in an infantry regiment of twelve regular companies, a battalion of field artillery of three batteries, one headquarters company, one machine gun company, and a band.

For details of the work in the Department of Military Science and Tactics, see the *General Circular of Information*.

All women in the first two years of undergraduate courses, and all men of those two classes who are excused from military drill, must take, in addition to the scholastic requirements for the degree, three hours a week in the Department of Physical Training.

For details of the work in the Department of Physical Training, see the *General Circular of Information*.

HYGIENE AND PREVENTIVE MEDICINE

All students in the first two years of undergraduate courses are required to attend lectures on Hygiene and Preventive Medicine given once a week throughout the college year.

ADVANCED WORK AND RESEARCH

The opportunities for study and investigation offered to advanced students in the College and in the various departments of Cornell University are very great. The situation of the College gives it a great variety as well as an abundance of material for research, and the facilities for prosecuting the work are ample. To graduate and advanced students, every opportunity and encouragement will be offered for carrying on independent investigations. For special courses in advanced work and research, see under the various departments, pages 12-22.

ROSWELL P. FLOWER LIBRARY AND OTHER LIBRARY FACILITIES

The Flower Library. By a gift of five thousand dollars to Cornell University for the purpose, the Honorable Roswell P. Flower, in 1897, laid a broad foundation for a thoroughly good working veterinary library. In order to insure the permanent usefulness of this library, Mrs. Flower, in 1900, gave ten thousand dollars for an endowment fund, the annual income from which is to be used for the purchase of books. The books and periodicals obtained with this fund have been considerably increased by donations from various persons, and by books obtained from the income of the College; the veterinary library, which contains five thousand seven hundred volumes, is also largely supplemented by the University Library, and by loans of books and periodicals therefrom.

The periodical room at the College, which is open daily from 7 a. m. to 6 p. m., contains the leading veterinary and medical periodicals in English, French, German, Swiss, and Italian. A card index to the original articles appearing in these periodicals is a unique feature. In this room are also found Foster's Encyclopedia, Medical Dictionaries, and the Index Catalogue of the Medical Library of the Surgeon General's Office, and a faculty card bibliography.

The Flower Library Room, which is open for free consultation at hours convenient to the students, contains most of the books and bound periodicals belonging to the library or lent to it from the University Library. Books bearing especially upon the work of any laboratory course are kept upon the shelves of the laboratory where they are constantly accessible. Books may be drawn from the library for home use by veterinary students and other scientific workers.

The books and bound periodicals and transactions in the University Library upon veterinary and human medicine, with allied sciences, exceed ten thousand volumes. Over two thousand periodicals and transactions are received, many of them pertaining directly to medicine and biology. Veterinary students have free access to the University library and reading room which are open daily from 8 a m.. to 10.45 p. m.

SEMINARIES

The different departments hold seminars or special conferences for their advanced and graduate students. The purposes of these seminars are: the discussion of methods of advanced and independent work, such as is expected of those who are preparing theses or prosecuting any special investigation; the presentation of the result of investigations and the progress of knowledge in the

various departments; reports of students on the progress of their work. The students incidentally gain facility in public speaking and in preparation for taking a creditable part in the meetings of veterinary or medical societies.

SOCIETY OF COMPARATIVE MEDICINE

This is a student society organized for the purpose of giving mutual aid in gaining general and special medical knowledge, and facility in conducting the exercises of the meetings and in presenting papers and discussions in a clear and forcible manner before an audience.

NONRESIDENT LECTURERS

Practitioners and others working in the interests of veterinary medicine from time to time give lectures to the veterinary students. This feature undoubtedly broadens the scope of instruction and brings the student into closer touch with matters pertaining to practice, meat inspection, and sanitation.

TUITION AND OTHER FEES

Tuition. For students not residents of New York State the annual tuition is \$200 of which \$110 is to be paid at the beginning of the first term, and \$90 at the beginning of the second term.

Free Tuition. In the words of the law for the administration of the New York State Veterinary College, "no tuition fee shall be required of a student pursuing the regular veterinary course, who, for a year or more immediately preceding his admission to said veterinary college, shall have been a resident of this state."

Other Fees. Every person taking laboratory work is required to pay for the materials actually used. For the first year the laboratory fees will approximate \$43; for the second year, \$55; for the third year, \$34; for the fourth year, \$17. In some departments a rebate is given at the end of the academic year if there has not been much breakage or excessive use of material.

A matriculation fee of \$10 is charged all students on entering the University.

Every student is charged an Infirmary fee of \$5 a term, payable at the beginning of each term. In return for the Infirmary fee, any sick student is, on his physician's certificate, admitted to the Infirmary, or, at the discretion of the Infirmary committee, to the Ithaca City Hospital, if receivable under its rules, and is given without further charge a bed in a ward, board, and ordinary nursing, for a period not exceeding two weeks in any one academic year.

Each male undergraduate student registered in the University shall be charged a locker fee of \$2 a term, which locker fee shall cover the use of a locker in the University gymnasiums, or in the State Drill Hall, or in Schoellkopf Memorial Building with the use of bathing facilities and towels therein and the use of the Cornell University gymnasiums and play grounds.

A fee of \$10 is charged to cover the expenses of graduation, diploma, etc. This fee must be paid at least ten days before commencement. The amount will be refunded, should the degree not be conferred.

All tuition and other fees may be changed by the Trustees to take effect at any time without previous notice.

For further information concerning fees see the *General Circular of Information*.

Living expenses in Ithaca vary from \$8 to \$12 a week. Books, instruments, stationery, etc., cost about \$40 a year.

SCHOLARSHIPS, FELLOWSHIPS, AND PRIZES

The following scholarships and prizes are offered to students in the veterinary college as incentives to earnest study:

University Undergraduate Scholarships. At a special examination held at the beginning of the fall term in each year, nine scholarships, continuing for two years and of an annual value of \$200 each, are thrown open to competition by all members of the incoming Freshman class. For a full statement of the provisions regulating the award and tenure of these University Undergraduate Scholarships, see the *General Circular of Information* which may be had upon application to the Secretary of Cornell University.

University Scholarship for Graduates. One University Graduate Scholarship of the value of \$200 is offered annually to a graduate in veterinary medicine. This scholarship is open to graduates of all veterinary schools having requirements for graduation equivalent to those of this college. Applications may be made by seniors in good standing and should be filed with the Dean of the College on or before March 15 of the academic year preceding the one for which application is made.

The Horace K. White Prizes. These prizes, established by Horace K. White, Esq., of Syracuse, are awarded annually to meritorious students in the graduating class of the college. They consist of a prize of \$15 to the first in merit, and a prize of \$10 to the second in merit.

The Hollingworth Honorarium for Research. An honorarium of \$50 in pathology and bacteriology established by Dr. W. G. Hollingworth of Utica, is awarded annually to a member of the graduating class. The award is based upon the general standing of the student throughout his course and especially on his standing in pathology and bacteriology.

The Jane Miller Prize of \$50 in veterinary physiology is awarded to the student or students doing the best work in this subject. This prize is usually divided into sums of \$30 and \$20, and will be awarded at the end of the junior year.

The James Gordon Bennett Prize of \$50 is offered to members of the graduating class. The award is based upon work in the clinics giving evidence of the ability of the recipient to handle diseased animals humanely. Special emphasis is laid upon the ability of the student to apply effectively local and general anaesthesia.

OPPORTUNITIES FOR SELF-HELP

In addition to occasional and irregular work at hourly compensation in the various departments, the following positions as student assistants are open to capable veterinary students in their senior year:

Anatomy	\$125 to \$300 a year
Bacteriology and Pathology	\$125 to \$250 a year

STUDY FOR PRACTITIONERS

The very rapid advance made during recent years in veterinary science and in facilities and methods for teaching it, as well as the advantage to be gained by studying a given subject under more than one teacher, make it highly desirable that busy practitioners should be enabled so far as possible to increase their personal knowledge by means of study at such times as they can leave their practice.

The New York State Veterinary College wishes to supply this want as far as practicable and offers every facility at hand to accomplish this end.

Veterinarians who are legally authorized to practice at their places of residence will be admitted to any class in the college at any time and for such period as they may elect, without entrance examinations. They will be wholly free to elect any studies that are being regularly taught at the time, and will be granted all opportunities and facilities offered to regular students as long as these privileges do not interfere with the instruction of the regular students.

No tuition will be required from licensed veterinarians practicing in the State of New York.

Those taking laboratory courses will be required to pay fees to cover the cost of the material used.

Every practicable facility will be offered for special study along desired lines. A study of pages 12 to 22, Departments, Methods, and Facilities will enable a practitioner desiring to attend, to determine in advance precisely what work will be in progress at a given date.

This work is offered to veterinarians entirely for the benefit they may derive from increased knowledge in veterinary science and does not contemplate the granting of a degree, certificate, or other evidence of responsibility on the part of the College.

General inquiries in reference to this work should be addressed to the Dean, whereas questions relating to studies in the various departments may be addressed to the heads of the departments concerned.

SEVEN-YEAR COURSE IN AGRICULTURE (B.S.) AND VETERINARY MEDICINE (D. V. M.)

A regular student may register in both the New York State College of Agriculture and the New York State Veterinary College with the following restrictions:

1. Completion of all specifically required courses.
2. Credit of ninety hours, none of which is in the Veterinary College.
3. Permission of both the faculties concerned.

Such a student may be recommended for his degree in the College of Agriculture when he has met the following requirements:

1. Completion of thirty hours, of which not less than twelve shall be for courses taught in the New York State College of Agriculture.
2. Fulfillment of both the group and the agricultural elective requirements of the College of Agriculture.

On completion of the remaining three years, if he meets the requirements of the State Veterinary College, he will receive the degree of doctor of veterinary medicine.

APPENDIX A

Openings for Veterinarians in America

1. In the Medical Department of the United States Army there is a demand for a limited number of veterinarians. Beginning with the rank of Second Lieutenant, the veterinarian earns promotions after certain periods of service and examination. The initial salary is \$1,700 and quarters.
2. In the Bureau of Animal Industry, United States Department of Agriculture, a number of veterinarians are employed professionally as livestock agents and inspectors, inspectors and superintendents of quarantine stations, and investigators in bacteriology and pathology. By an Act of Congress, the federal veterinary inspectors must be graduates of a veterinary college maintaining the requirements of the Bureau. Applicants for the position must take a civil service examination. The initial salary is \$1,500.
3. In the different states there are appointive positions as State Veterinarian, and in some states as County or District Veterinarian. These are desirable positions and involve considerable responsibility.
4. The time is not far distant when each municipality must have its veterinary inspector of markets, abattoirs, and butcher meat, as well as of milk and other dairy products.
5. Veterinarians are needed to serve on tuberculosis and other commissions, in order that work in this field may be conducted intelligently and successfully along scientific lines. The control of disease depends largely upon those specially trained in the anatomy, physiology, hygiene, and pathology of the lower animals.
6. Educators in comparative pathology are wanted in agricultural and veterinary colleges, and experiment stations, and must soon be in demand by every medical college that aims to keep abreast of the times.
7. There are always openings in the wide field of private veterinary practice. With a ratio of three farm animals to every human being, and with less than one veterinarian to every thirteen doctors of medicine for man, the balance of opportunity seems to be largely in favor of the veterinary practice, and this preponderance must steadily increase with the recovery of stock values and the increase in the number of farm animals.

APPENDIX B

Legal requirements for license to practise veterinary medicine and surgery in the State of New York.

Public health law, Laws of 1909, chapter 49; chapter 45 of the Consolidated Laws, became a law February 17, 1909. Article 10, Veterinary medicine and surgery, became a law June 1, 1895, as amended to 1916.

§ 11. **Qualifications for Practice.** No person shall practise Veterinary medicine after July 1, 1895, unless previously registered and legally authorized, unless licensed by the Regents and registered as required by this article; nor shall any person practise veterinary medicine who has ever been convicted of a felony by any court, or whose authority to practise is suspended or revoked by the Regents on recommendation of the State Board. Any person a citizen of the United States and of the State of New York, who matriculated in a reputable

veterinary medical school prior to January 1, 1895, and who received his degree therefrom prior to January 1, 1897, or any person who was engaged in the practise of veterinary medicine prior to the year 1886, shall be admitted to the veterinary examination for license to practise, as conducted by the Regents of the University of the State of New York.

§216. **Admission to Examination.** The Regents shall admit to examination any candidate who pays a fee of \$10 and submits satisfactory evidence, verified by oath if required, that he (1) is more than 21 years of age; (2) is of good moral character; (3) has the general education required in all cases after July 1, 1897, preliminary to receiving a degree in veterinary medicine; (4) has studied veterinary medicine not less than three full years, including three satisfactory courses, in three different academic years, in the veterinary medical school registered as maintaining at the time a satisfactory standard; (5) has received a degree as veterinarian from some registered veterinary medical school. The degree in veterinary medicine shall not be conferred in this State before the candidate has filed with the institution conferring it, the certificate of the Regents that three years before the date of the degree, or before or during his first year of veterinary medical study in this State, he has either graduated from a registered college or satisfactorily completed an academic course in a registered academy or high school; or has a preliminary education considered and accepted by the Regents as fully equivalent or has passed Regents' examinations equivalent to the minimum requirement in such preliminary education for candidates for medical or dental degrees in this State. The Regents may, in their discretion, accept as the equivalent for any part of the third and fourth requirements, evidence of five or more years' reputable practice in veterinary medicine, provided that such substitution be specified in the license.

§218. **Examinations and Reports.** Examination for license shall be given in at least four convenient places in this State and at least four times annually, in accordance with the Regents' rules, and shall be exclusively in writing and in English. Each examination shall be conducted by a Regents' examiner, who shall not be one of the veterinary medical examiners. At the close of each examination, the Regents' examiner in charge shall deliver the questions and answer papers to the board, or to its duly authorized committee, and such board, without unnecessary delay, shall examine and mark the answers and transmit to the Regents an official report, signed by its president and secretary stating the standing of each candidate in each branch, his general average and whether the board recommends that a license be granted. Such report shall include the questions and answers and shall be filed in the public records of the University. If a candidate fails in his first examination, he may, after not less than six months' further study, have a second examination, without fee. If the failure is from illness or other cause satisfactory to the Regents, they may waive the required six months' study.

§219. **Licenses.** On receiving from the State board an official report that an applicant has successfully passed the examination and is recommended for license, the Regents shall issue to him, if in their judgment he is duly qualified therefor, a license to practise veterinary medicine. Every license shall be issued by the University under seal and shall be signed by each acting veterinary medical examiner of the board and by the officer of the University who approved the

credential which admitted the candidate to examination, and shall state that the licensee has given satisfactory evidence of fitness as to age, character, preliminary and veterinary medical education and all other matters required by law, and that after full examination he has been found duly qualified to practise. Applicants examined and licensed before July 1, 1897, by other state examining boards registered by the Regents as maintaining standards not lower than those provided by this article, and applicants who matriculated in a New York State veterinary medical school before July 1, 1896, and who received the veterinary degree from a registered veterinary medical school before July 1, 1897, may without further examination, on payment of \$10 to the Regents, and on submitting such evidence as they may require, receive from them an indorsement of their license or diplomas conferring all rights and privileges of a Regents' license issued after examination. If any person whose registration is not legal or who is not registered because of some error, misunderstanding, or unintentional omission, shall submit to the State Board of Veterinary Medical Examiners or the Regents of the University of the State of New York satisfactory proof that he had all requirements prescribed by law at the time required for registration and was entitled to be legally registered, he may, on unanimous recommendation of the State Board of Veterinary Medical Examiners, or by action of the Board of Regents receive from the Regents under seal a certificate of the facts which may be registered by any county clerk and shall make valid the previous imperfect registration and such certificate shall include the date on which such person could or should have registered, and his registration shall be deemed to have been valid and corrected from that date. And any veterinary practitioner in any county of this State who was registered in the county clerk's office between July 1, 1895, and July 1, 1915, may, upon satisfactory evidence of such registration and of qualifications to practise, and upon written application, receive from the Board of Regents a certificate of facts which may be registered in the office of the County clerk where such practitioner was registered, and thus make valid his previous imperfect registration. Before any license is issued it shall be numbered and recorded in a book kept in the Regents office and its number shall be noted in the license. This record shall be open to public inspection, and in all legal proceedings shall have the same weight as evidence that is given to a record of conveyance of land.

220. **Registry.** Every license to practise veterinary medicine shall, before the licensee begins practise thereunder, be registered in a book to be known as the "Veterinary Medical Register," which shall be provided by and kept in the clerk's office of the county where such practice is to be carried on, with name, residence, place and date of birth, and source, number, and date of his license to practise. Before registering, each licensee shall file, to be kept in a bound volume in the county clerk's office, an affidavit of the above facts, and also that he is the person named in such license, and had, before receiving the same, complied with all requisites as to attendance, terms and amount of study and examination required by law and the rules of the University as preliminary to the conferment thereof, and no money was paid for such license, except the regular fees, paid by all applicants therefor; that no fraud, misrepresentation or mistake in any material regard was employed by any one or incurred in order that such license should be conferred, and shall annually in the month of January report,

under oath, to the State board of examiners, any facts required, shall pay to the Regents a registration fee of one dollar, and shall receive a certificate of registration that must be conspicuously displayed together with the original certificate of registration. Every license, or if lost, a copy thereof, legally certified so as to be admissible as evidence, or a duly attested transcript of the record of its conferment, shall, before registration, be exhibited to the county clerk, who, only in case it was issued or indorsed as a license under seal by the Regents, shall indorse or stamp on it the date and his name preceded by the words, "Registered as authority to practise veterinary medicine, in the clerk's office of ——— county." The clerk shall thereupon give to every veterinarian so registered a transcript of the entries in the register, with a certificate under seal that he has filed the prescribed affidavit. The licensee shall pay to the county clerk a total fee of \$1 for registration, affidavit, and certificate.

CATALOGUE OF STUDENTS

1919-1920

FRESHMEN

Applegate, Edward Cuyler
Bogan, James Joseph
Bogan, John Lawrence
Bramer, Clarence Newell
Brenning, Irvin Frederick
Conlon, Lawrence Hayes
DeCamp, Clayton Earl
Donahoe, Walter Richard
Farnsworth, Harold DeForest
Foote, Howard John
Freer, Charles Bessely
Freer, George Hoyt
Gonzalez-Moreno, Charles Albert
Grantz, Abraham Isaac
Haines, George
Hall, Frederick Abbey
Harden, James Henry
Higgins, Charles Wilcox
Jackson, Guy Jay
Kern, Clyde Lewis
Kilborne, Charles Lucius
Kirschenbaum, Robert
McMurray, Harold Benjamin
Marshall, James Sumner
Martin, Edward William
Maus, Frank Charles
Merritt, Clifford Alexander
Miller, Robert Mathias
Moersfelder, William John
Nelson, Harold George
Nevens, Milton Alson
Ostrander, Charles Leslie
Robens, William Glenn
Sanders, Edward Berrien
Slater, Otis John
Sloan, DeVillo
Smith, Philip Rudolph Botha
Smith, Robert Francis
Taylor, Theodore Fred
Tremlett, James Richard
Wooden, Aubrey Arthur

New York City
Edmeston
Edmeston
Amsterdam
Barneveld
South Lansing
Ithaca
Sauquoit
Marion
Yonkers
Ellenville
Ellenville
Washington, D. C.
New York City
Pleasantville
La Grangeville
Brooklyn
Montezuma
Thorndike, Maine
Worcester
Moravia
New York City
Freedom
Morrisville
Utica
Johnson City
Walden
New York City
New York City
Clinton Corners
Glens Falls
Ithaca
Poland
Ritter, S. C.
Kirkwood
Dunkirk
Rosendal, South Africa
Ludlowville
Morrisville
Edmeston
Waterloo

SOPHOMORES

Bower, Lawrence Robert
Brown, Ellsworth Sheffer
Brunett, Earl Louis
Bullard, John Flower
Caslick, Edward Albert
Cheney, David William
DeVult, Harold Moon
Dohm, William Herman
France, Morris Giles
LaFrance, John
Loope, Clarence
McBride, Frank
Monroe, Roswell Miller
Montemayor, Mariano Rangel
Roberts, Clarence Roger
Ruehle, Otto, jr.
Strauss, David
Turner, John Corydon
Vasilius, George Gustav Emil
Whipple, Earl Franklin

Trumansburg
Shortsville
Herkimer
Ithaca
Newfield
St. Regis Falls
Barneveld
New York City
Seward
Ithaca
Cortland
Perry
Liberty
Alaminos, Pangasinan, P. I.
Holland Patent
Clinton Corners
Albany
Cassadaga
New York City
Rochester

JUNIORS

Bronson, Frank E.
Bryant, Maynard Luther
DeLaney, James Michael
Dodge, Loren Newell
Galinsky, Samuel
Grant, Wilbur Franklin
Hall, Walter Jay
Harmon, Glenn Douglas

Hornell
Troy
Syracuse
Moir
Utica
Ithaca
Monroe
Savannah

Herman, LeRoy Louis
McCoy, Charles Stickney
Morgan, Carlton James
O'Leary, Joseph Henry
Paddock, Arthur James
Rathbone, John Atkinson
Schwamm, George, jr.
Sutton, Harry William
Taylor, Donald Fay

Williamsville
Sussex, N. J.
Mohawk
Cortland
Prattsburgh
Parkersburg, W. Va.
New York City
Sidney Center
Albany

SENIORS

Brink, James Henry
Carpenter, Clifford Deane
Conlin, William Jerome
Cushing, Edward Raymond
Desson, Leonard Joseph
Duncan, Charles Eugene
Fincher, Myron Gustin
Friderici, Kenneth Schuyler
Fuller, James West
Helms, Orland Edward
Johnston, Roy Campbell
Laughlin, John
McBride, Earl James
McKinney, Robert Asa
Marsh, Herbert Edward
Mills, Adrian Morse
Montfort, Ellis Lindsey
Pease, Donald Linus
Robinson, Aubrey Eugene
Russell, Alden Hesseltine
Smith, Earl D.
Stephenson, Hadley Carruthers
Sturrock, John
Varley, James Richard
White, Floyd Henry
Wilkinson, Raymond James

Newark Valley
Unadilla
Glens Falls
Shortsville
Ithaca
Brooklyn
Corfu
Amsterdam
Springville
Randolph
Livingston Manor
Akron
Warrensburg
McLean
New Milford, Conn.
Durhamville
Peruville
Delhi
Ithaca
Watertown, Mass.
Cortland
Ogdensburg
Ithaca
Greenwich
Rhinebeck
Ithaca

GRADUATE STUDENTS

Martinaglia, Giovanni
Pierce, James Dwight (not candidate for degree)
Tubangui, Marcus A.

Randfonbein, Transvaal, South Africa
Springfield, Mass.
Poroc, Pampanza, P. I.

PRACTITIONERS' COURSE

Konishi, Kaname
Perry, William H.

Morioko, Japan
Arkport

SUMMARY

Freshmen	41
Sophomores	20
Juniors	17
Seniors	26
Graduate Students	3
Practitioners' Course	2