Can a rooster stop a railroad?

Not really. But he can keep our products from riding on one. Or on a truck or a plane—for a while, anyway.

You see, every batch of product we make must go into quarantine before it can ship out. And stay there until we prove purity and potency—often with tests on chickens or other animals. And with a passel of other test procedures.

We call it "quality control"—and start it with our raw materials. People in white coats give them every test you can think of—physical, chemical, biological. Products-in-process, too. And those finished products in quarantine. Our purpose is to maintain quality, of course. But also to assure the uniformity veterinarians require—today, next month, next year.

What standards do we aim for? Well, Uncle Sam sets minimums below which we cannot go, and wouldn't if we could. But it's perfectly proper to exceed them. So, more often than not, we do.
The SPECULUM

VOLUME XVI  SPRING, 1963  NUMBER 3

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THE SPECULUM is a quarterly publication of The Ohio State University College of Veterinary Medicine. It is published by the students for the dissemination of news to the alumni, faculty, students, and other interested persons. Contributions are welcomed but we reserve the right to edit the material.

SPRING, 1963
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The SPECULUM
In this issue of *The Speculum*, I have asked Dr. Vernon Tharp, our Director of Clinics for the past fifteen years, to utilize the space ordinarily reserved for the Dean. The clinical program has continued to grow under Dr. Tharp's understanding leadership and I am sure the alumni will be interested to hear from that segment of administrative responsibility.

I do want to remind and extend to each of you a personal invitation to our June Conference and particularly to be with us for the Dedication of Goss Laboratory on June 12. I am sure all of the former students will want to return to pay tribute to a most worthy member of our profession.

Will look forward to seeing you at that time.

Sincerely,

Walter R. Krill

Over the past year some changes have been in progress which have materially benefited and facilitated the clinical teaching program. Many of you will well remember the hours of lecturing you sat through in the small amphitheater in the south end of the clinic building. Were you to walk through the double doors now, you might be surprised to find the tiers of seats and writing benches have been removed and the room completely renovated, making an area large enough to house the radiology facilities and a new medical diagnosis and treatment room for small animal medicine.

The radiology area is equipped with the following: A Maximar G.E. deep x-ray 250 kvp unit; a Picker three phase 500 ma x-ray diagnostic unit; a serigraph Sanchez-Perez unit; a Picker single phase 500 ma x-ray diagnostic unit, semimobile; a Philips 20 ma mobile x-ray diagnostic unit; a G.E. 30 ma mobile x-ray diagnostic unit; and a Maximar G.E. 220 kvp deep therapy x-ray unit, semimobile; a complete dark room and other equipment necessary for teaching and clinical service.

The medical treatment and diagnostic area includes a screened room for electro-cardiography, a room completely equipped for ophthalmological diagnosis, medical and surgical treatment of the eye, and a general diagnostic, treatment and physical therapy area.

Since the Pathology Department has occupied their new building, Goss Laboratory, the north end of the clinic building has been renovated and repainted and the clinical diagnostic laboratory moved into this laboratory space. The necropsy room is being converted into an obstetrics laboratory. The office space will house the large animal clinical staff, including the ambulatory clinicians. The class room will be divided into office space and a student-staff conference and reading room.

The entire clinic is being painted which will make the surroundings a little more pleasant and professional looking.
The ambulatory clinic now has three full time clinicians. A contract has been in effect for the past year whereby the ambulatory clinic performs artificial insemination for Central Ohio Breeders Association in the western half of Franklin County. Effective January 1, 1963, the Veterinary Clinic contracted the veterinary services and supervision of the health, hygiene and sanitation program of the Central Ohio Breeders Association. The insemination service and the bull stud contract has increased the quality of teaching in the area of reproduction and artificial insemination.

A program has now been organized in the Department of Veterinary Medicine for graduate instruction in Laboratory Animal Medicine. Graduate students can obtain a Masters Degree in five quarters. There seems to be an ever increasing demand for veterinarians with specialized training in this rapidly developing area. To fulfill the needs of veterinarians training in this field, we are attempting to provide instruction in the three primary aspects of the field: 1) The diseases of laboratory animals. 2) The administration of laboratory animal facilities. 3) In research methods and instrumentation so that they will be prepared to become members of research teams working in biological research using animals as research tools. The Army Veterinary Corps has assigned a veterinarian to the area and have two more assigned for next year.

After reading this column about our expansions and re-decorating, you may have assumed that we have become resigned to the fact that we will be operating in the old clinic building forever. We have high hopes that the above mentioned renovating is only a temporary measure and that a new clinic building will be under construction within the next two or three years. We know if you have had the opportunity to visit some of the other Colleges of Veterinary Medicine and have compared their physical plants to ours that you will understand the need for a new clinical building and will use all your influence to aid us in getting appropriations for it in the near future.

**STUDENT A. V. M. A. NEWS**

*By Roger K. Beck, Vet. Med. III*

It seems only fitting, at this time, reviewing the past year's activities, to extend appreciation to the outgoing officers for duties well performed. Also, a sincere wish for success and increased enthusiasm and participation is extended to President-Elect Herb Topp, as he accepts the gavel and duties of the chair from President Lauren Wolfe.

Activities of this quarter were again highlighted by the annual Pre-Vet Day on May 4th. Approximately 200 high school and college students, parents, and friends visited and toured Sisson Hall and the Veterinary Clinic. Co-chairmen Bob Rainier and Bob Linnabary did a most admirable job in preparing for this event.

Also, somewhat of a new high was established in faculty participation when seven members and their wives attended the Spring Square Dance held at Smith Gardens. This dance proved to be one of the most successful in recent years, and the demand:output ratio is already above the norm for next year.

The meetings of the past quarter, as well as the past year, have been excellently planned and executed by Vice President Milt Wyman. His efforts, possibly unrewarded at times, are to be highly commended. Dr. Guard, presenting his paper, “Diagnosis of Lameness”, concluded these meetings on May 15th.

The Park of Roses was again the location of our annual Spring Picnic. And, as in the past, attendance was exceeded only by the tasty desserts and roast beef. Children and wives alike got a chance to see good-ole-dad bring that heaped-up plate through the heavy traffic without even a misstep after fumbling, booting, and overthrowing first base in the pre-supper warm up.

Newly elected officers for 1963-64 are the following:
- Pres.-Elect, Asa Mays
- Vice Pres., Larry Heider
- Secretary, George Bishop
- Treasurer, Jay Richardson

Congratulations men!
A Case of Acute Disseminated Histoplasmosis Accompanied By An Autoimmune Hemolytic Anemia

BY JOHN SHADDUCK, Vet. Med. IV
and
JAMES WEICKERT, Vet. Med. IV

Case History
On the second of February, 1963, a one and one half year old female Boston Terrier weighing fifteen pounds was admitted to the Ohio State University Veterinary Clinic with a history of occasional vomiting, frequent, loose bowel movements and progressive weight loss of one month's duration. Abdominal distention had been noticed for the week prior to admission. Frequent voiding of a red-brown urine had occurred for the past two days. The animal's appetite had been consistently good.

Physical Examination
A thorough physical examination revealed that the dog was somewhat depressed, weak and moderately dehydrated. Its oral mucous membranes were markedly pale and icteric. Ascites, hepatomegaly and splenomegaly were discovered while palpating the abdomen. The heart and lung sounds were normal and at no time did the animal do any coughing. The hemogram showed 6.85gm./100ml. hemoglobin, hematocrit of 21% and 2.96 million RBC/cu. mm. The total white cell count and differential were normal. Slight enlargement of the right side of the heart, splenomegaly and extreme hepatomegaly were demonstrated radiographically.

The dog was treated symptomatically with crude liver extract, antibiotics and a commercial kaolin preparation. Blood transfusions were given on the 4th and 6th days of hospitalization. The hemoglobin and hematocrit values rose slowly, reaching a high of 11.25gm./100ml. and 35% respectively.

Laboratory Data
On all the hemograms the dog's total and differential leukocyte counts were normal while the erythrocytes showed slight to moderate anisocytosis and slight polychromatophilia. No Hemobartonella were ever seen.

The urine of the dog was consistently red-brown in color. Two urinalyses performed 15 days apart were normal except that the urine contained a large quantity of bile.

Because of the hepatomegaly, ascites and icterus, it seemed advisable to perform certain liver function tests. Therefore, the serum protein levels were measured. The animal had 4.7gm./100ml. total serum protein of which 2.1gm. were albumin and 2.6gm. were globulin. (Normal values are: total protein, 5.48-6.2gm./100ml.; albumin, 3.0-4.8gm./100ml. and globulin, 1.3-3.2gm./100ml.) Also a bromsulphalein retention test was performed. To do this a measured amount of bromsulphalein dye was injected intravenously. Five and thirty minutes later a blood sample was taken from another vein. If the liver had been functioning normally it should have been able to remove all but about 3% of the dye from the blood stream in 30 minutes. In the patient, 41% of the dye was still in the blood at the end of 5 minutes and 17% was still there after 30 minutes. The results of these tests were interpreted as indicating moderately severe liver damage.

The serum bilirubin levels were determined in order to get an indication of the reason for the icterus. The directly
reacting serum bilirubin was found to be 0.3mg./100ml. and the total serum bilirubin was 0.3mg./100ml. (Normal values are 0-0.2mg./100ml. for the direct and 0-1mg./100ml. for the total serum bilirubin.) The high direct value with a normal total value indicates intrahepatic or posthepatic biliary obstruction.

In an attempt to determine the cause of the anemia, direct Coombs tests were performed on the 4th, 9th and 17th days. This test is designed to detect an immune reaction by the patient to his own erythrocytes. In such a reaction the patient produces antibodies which coat his erythrocytes, making them highly susceptible to phagocytosis and lysis, thus producing a hemolytic anemia. This antibody coating of erythrocytes can be demonstrated by mixing washed red blood cells from the patient with anti-canine globulin serum produced in a rabbit. The reaction is read grossly and microscopically by observing the clumping of the patient's erythrocytes. Our patient's erythrocytes clumped each time this test was performed.

Since red blood cells of human patients with positive Coombs tests are often less resistant to hypotonic solutions than normal, the osmotic fragility of the dog's erythrocytes was determined at the time of the last Coombs test. The patient's cells were found to be more resistant to hypotonic solutions than the control's, but this was attributed to the relative immaturity of the patient's erythrocytes. The possibility that the patient's hemoglobin was abnormal was considered. However, when the electrophoretic migration pattern of the patient's hemoglobin was compared to the pattern of normal controls there was no detectable difference.

The consistently positive direct Coombs test plus the severe anemia, icterus and normal hemoglobin electrophoresis led to a diagnosis of an acquired autoimmune hemolytic anemia. Although no information concerning this problem was found in the veterinary literature, the subject is discussed in several human texts. The disease occurs either idiopathically or secondarily in diseases of the liver, diseases with an abnormal proliferation of the reticuloendothelial system or diseases with an abnormal proliferation of lymphoid tissue. The incomplete agglutinating antibody produced in this condition coats the patient's erythrocytes making them susceptible to rapid destruction. It is this erythrocyte coating antibody that is detected by the direct Coombs test. The life span of the erythrocyte is directly related to the degree of cellular coating. A decrease in antibody concentration and erythrocyte coating is associated with corticosteroid therapy.

Clinical Diagnosis

1. Idiopathic acquired autoimmune hemolytic anemia with secondary hepatomegaly and splenomegaly.
2. Primary hepatic disease with secondary acquired autoimmune hemolytic anemia.

**Hemoglobin Levels During Hospitalization**

*Blood Transfusion*
Clinical Course

Throughout the animal's stay in the Clinic the mucous membranes were pale and variably icteric, the stools pasty and dark. Red-brown urine was voided frequently. Occasional vomiting of undigested food occurred; however, the appetite remained good until two days prior to death. Four days after admission, 180cc. of hazy, straw colored fluid was aspirated from the abdomen. Three days later another 350cc. were withdrawn and in another ten days 510cc. were aspirated. Each time cytological examination of the fluid showed it to be a serous exudate with no atypical cells or Histoplasma organisms.

For the first eight days after admission the animal's condition remained relatively unchanged, except that it continued to lose weight slowly. In an attempt to combat the autoimmune anemia, daily treatment with 10mg. of prednisolone and antibiotics was initiated on the 10th day. The dog's condition began to improve shortly thereafter and this continued for seven days. Then the animal became weaker and more depressed and ascitic fluid accumulated rapidly. The hemoglobin dropped to 4.45gm./100ml., the hematocrit to 18% and the RBC to 2.88 million/cu.mm. Daily blood transfusions were begun. Three days later the dog became severely depressed, extremely icteric and stopped eating. Parenteral fluids were administered and the dog was put in the oxygen cage. The next day there was a severe bilateral bloody nasal discharge, mucopurulent ocular discharge, dyspnea, scanty, tarry stool and extreme depression. The moribund animal was submitted for necropsy.

Necropsy Findings

The abdomen contained 720ml. of yellowish ascitic fluid. A portion of this was sent for cytopathological examination. It was found to be positive for histoplasmosis. Each reticulocyte contained the organisms and many cells had as many as 4 or 5 of the conidia. The borders of the liver were rounded and both the liver and spleen were markedly enlarged. The visceral surface of the liver was dotted with pin-head sized raised greenish nodules. The combined weight of the liver, spleen, and ascitic fluid totaled almost 25% of the animal's body weight. All visceral lymph nodes were enlarged and very firm upon palpation. The ileocecal lymph nodes were the most severely affected. The lungs showed diffuse white islands throughout the parenchyma. All lobes seemed to be affected about equally. The hilar lymph nodes were enlarged but not as markedly as were the visceral lymph nodes.

The lesions seen on gross necropsy are classical for diffuse systemic histoplasmosis. When present, the hepatic, splenic, lymph node and lung involvement are pathognomonic. A positive diagnosis was made with an impression smear of the liver stained with hematoxylin and eosin which showed the Histoplasma organisms in the liver cells.

Final Diagnosis

Acute disseminated histoplasmosis accompanied by an autoimmune hemolytic anemia.

Conclusion and Summary

The use of corticosteroids to combat the autoimmune anemia undoubtedly aided the dissemination of the Histoplasma, again emphasizing the dangers inherent in corticosteroid therapy. The absence of leukocytosis and the negative findings on the cytologic examinations of the ascitic fluid made the clinical diagnosis difficult.

A case of histoplasmosis accompanied by an autoimmune hemolytic anemia has been described. Several more refined laboratory examinations used to support the diagnosis of autoimmune hemolytic anemia have been discussed.

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1. Miale, John Buyer Laboratory Medicine, Hematology, St. Louis, C. V. Mosby Co., 1958.

SPRING, 1963
Goss Laboratory—Its Origin and Purposes

By GENE SNYDER, Vet. Med. III

Goss Laboratory of Veterinary Pathology, the new home of our College’s Department of Veterinary Pathology, will be dedicated on June 12, 1963, by a short ceremony starting at 3:30 p.m. followed by an open house and a reception. The building is named for Dr. Leonard Goss who served as Chairman of the Department of Veterinary Pathology from 1920 to 1947.

The building is designed for maximum efficiency in teaching pathology and conducting research. There are twice as many courses offered to the veterinarian in Graduate School as there are undergraduate courses in the college, the total of both keeping the teaching area in constant use. Each year the faculty of the Department evaluates each course for content and efficiency of learning. In 1950, they decided they would like to teach by an integrated laboratory-lecture-demonstration method. In the same year, they decided they would like to design and build for the most advantageous use of this efficient method of teaching. As a result, on the first floor of the new building is a combination lecture, demonstration, and laboratory room, the Audio-Visual Hall, where the lecturer can show slides and films without leaving the lecture podium and then conduct a microscopic laboratory without leaving the hall. It was discovered during the fall quarter of this year that teaching in this manner saved one full week of time which allowed more review and the presentation of more of the latest information to the student, and which confirmed the original belief that teaching in an integrated manner (laboratory-lecture-demonstration) is much more efficient. University Vice-President Carson has had many photographs taken of the Audio-Visual Hall to use in his speeches to illustrate what is a most efficient teaching arrangement and in his speeches has repeatedly emphasized this new concept in science education. In addition, Dr. Carson as Vice-President of Business and Finance, has illustrated to the public and the state legislature that $68,000 was saved by planning a combine lecture-laboratory instead of the conventional separate laboratory and lecture rooms.

Another idea that sprang from the faculty meetings of 1950 was that they could make learning easier by visualizing all the diseases of animals and poultry. So they have developed visual aids that they feel are second to none in the world. Dr. John H. Herrick, member of the University President’s Cabinet, uses the visual aids of the Department of Veterinary Pathology as models to show that this Department was a leader in the use of visual aids at this University.

Another concept of education in pathology conceived and accepted by the faculty in 1950 was the increased efficiency in teaching which could be achieved by “teaching machines”. Adjacent to the Audio-Visual Hall are four rooms separated by folding doors in which teaching machines are currently being built. Each machine will consist of photographs, artwork, and perhaps radiographs visualizing diseases of animals and birds with written descriptions and self-examination sheets. These rooms will be open at all times and the machines’ subjects will be in sequence with those of the course being taught. Midterm and final examinations will contain questions from the teaching machines. The goal here is to make every examination an educational experience with the major objective being to stimulate learning in such a way that the student will desire to continue his study of animal diseases throughout his lifetime. The Department desires to think of the student as a “colleague in learning” of animal diseases and hopes that he will continue to be such long after graduation. In accordance with this idea and because of the large classes, the plan of the Department is to have students come to the office of the instructor or stay after class.
when he has questions or is not content with only what has been given in class. The doors are always open to encourage the curiosity of the student.

For the necropsy assignment of the junior and senior years, there is a new room designed to provide efficiency in teaching and safety for the students. There is a squeeze stall for handling uncontrollable animals such as those being highly toxic or mentally disturbed to avoid accidents such as those that have occurred in the past. The necropsy tables were designed by staff members and have several unique features such as the T-shape of the large animal table to facilitate examination of internal organs. Carts on tracks take the refuse into the refrigeration room and then it can go to a rendering plant, or if it is dangerous to handle, it can be incinerated in the building by use of the top-loading incinerator. This has permitted, for the first time, the handling of Tuberculosis, Rabies and other dangerous diseases by the Department. The policy in necropsy is to allow the student to handle his case with as much freedom as possible—simulation of being in practice—but to be available for guidance and assistance in interpretation.

Adjoining the necropsy area is a demonstration room designed for the reporting of necropsy findings to students and clinicians. The design is such that 40 people may view the demonstration table, all standing with the displayed tissues within 60 inches of their eyes. The display table as well as the necropsy tables have color corrective lighting to permit the use of color television.

Besides necropsy, other applied pathology taught in the Department includes the Clinical Pathology Laboratory of which Dr. Loeb is in charge.

The other primary functions of the Department are teaching veterinary pathology on the graduate level and the conduction of research. There are 20 veterinarians (one more—a specialist in cardiovascular diseases—will soon join the staff) associated with the Department using the building for teaching and research. Of these, five have passed the National Board of Veterinary Pathologists and are certified to practice veterinary pathology. This Department has given more Master’s and Doctor of Philosophy degrees than any other department of Veterinary Pathology in North America.

The Department is particularly recognized because all who have taken all of their post-graduate work in the Department have successfully passed the national specialty board. The list of Veterinary Pathologists who were trained here is an impressive one and includes: the head of the Department of Pathology of the University of Montreal School of Veterinary Medicine, the head of the Department of Veterinary Physiology at Cornell, Kansas State University's only Board Certified Veterinary Pathologist, the head of the Department of Veterinary Pathology, University of Minnesota (DVM here), and many other veterinarians in other universities and research areas including the University of Connecticut's Professor of Veterinary Pathology and the head of Veterinary Pathology at the Armed Forces Institute of Pathology. There is presently recognized by the federal government to be a national shortage of veterinary pathologists. This shortage has caused a loss of good teachers to commercial firms and has assured by best estimates three jobs for every available certified veterinary pathologist in the United States. There is no shortage of veterinarians interested in going into veterinary pathology; only of facilities and teachers. July 1 begins the new year with 14 candidates who are eligible for their Ph.D. degrees studying in this Department. The Ph.D. program is unique in Veterinary Pathology because it includes a course taught jointly with human pathology that is available to veterinarians, physicians, and dentists. There are also some physicians in some of the other courses offered by the Department. Another advantage offered here besides receiving some training in human medicine is that they can use germ-free animals in their research training. All of these 14 Ph.D. candidates expect to go into teaching and research.

SPRING, 1963
Most of the staff members and graduate students have combined office-laboratories in the third floor of the new building where they can study and do microscopic work. Since the completion of the building, another area has been converted into these laboratory-offices as the facilities are more than fully-manned. They also have available a regular laboratory and a special maximum security laboratory in which to do work with radioactive materials, toxic substances, and highly contagious materials.

The germ-free animal area in the new building has been successfully in operation for the past several months. The Department has excelled in these projects with such successes as having the first germ-free puppies and Toxocara-free bitches (1959) and now is raising puppies germ-free with a very low mortality rate. The first germ-free kittens were also produced in this laboratory. Other research projects now being conducted with germ-free animals includes Porcine Poliomyelitis, demyelinating diseases induced by viruses, and cancers caused by viruses.

There is much to see in a tour of the new veterinary pathology building. After such a tour one's head is almost swimming in disbelief. The most appropriate words for the entire structure and facilities are planning and efficiency. The area and equipment for research and advanced education were financed by 50 per cent matching funds from the federal government and otherwise would not have been possible. And these funds would not have been granted except for the acknowledged tremendous need for veterinary pathologists and the very impressive record in teaching and research compiled over the years by the Department of Veterinary Pathology. The College and profession can do nothing but gain by the addition of the Goss Laboratory of Veterinary Pathology.

**DR. COLE HONORED BY INTERNATIONAL ACADEMY OF PATHOLOGY**

Dr. Clarence R. Cole was honored last week when he was elected to the Executive Council of The International Academy of Pathology. Election to the international organization is the world's highest honor accorded to medical pathologists and a few veterinary pathologists. Pathologists who are distinguished teachers and scientists from 62 countries have been elected to the International Academy of Pathology. Dr. Cole will serve as one of the nine councilors who meet twice each year to formulate policies designed to improve the teaching of pathology throughout the world and coordinate the teaching of pathology with allied sciences. Dr. Cole is the second veterinary pathologist elected to the Council since the Academy was founded in 1906; all other councilors are human pathologists. The Council directs an international research program in geographic pathology and is responsible for the publication of two international journals. One journal is entitled, LABORATORY INVESTIGATION, and the second journal is called, INTERNATIONAL PATHOLOGY. The Academy conducts an annual International Congress for the continuing education of its members. The 1963 meeting, held in the United States, consisted of a long course on thyroid diseases and 26 short courses covering fields where significant advances have been made in recent years. The 1964 Congress will be held in London, England.
Tuberculosis In Great Apes—
Columbus Municipal Zoo

By Don D. Farst, Vet. Med. II

On February 22, 1963, two young chimpanzees at the Columbus Zoo were routinely given an intradermal Tuberculosis test. The 48 hr. and 72 hr. readings were positive on both animals. Dr. J. C. Savoy, the zoo veterinarian, immediately ordered removal of these animals from the Great Ape House, and had them put in complete isolation in the zoo hospital.

Dr. Savoy and B. Stephan Kelley, zoo superintendent, then began to make plans for testing the remainder of the Great Apes to see the extent of the T.B. infection. A team of medical men, experts in different fields, was formed to do the testing.

Restraint of the animals was the biggest problem to overcome. Force was out of the question on any of the adult animals, so a very safe general anesthetic had to be chosen. The drug of choice was SERNYLAN (Formerly SERNYL), an experimental psycho sedative drug formulated by Parke Davis. This drug is meant to be used orally, but good results have also been obtained by IM injection with the capture gun.

March 5, 1963, the medical team met at the zoo to carry out the testing. Dr. Roenigk, OSU College of Veterinary Medicine, was in charge of the chest radiographs. Dr. Schnurrenberger, State Health Laboratory, was in charge of the throat and rectal swabs; and Dr. Stilson, Health Center Research Laboratory, was in charge of the intradermal skin testing. Dr. Savoy headed this team and administered the anesthetic.

All the animals were offered the proper dosage of SERNYLAN in warm tea. Five animals took the drug and went down, while two animals refused to take an adequate dosage. The adult male gorilla and the adult male chimpanzee were the two animals that didn't go down. They were tested at a later date.

The animals who took the anesthetic were: adult female gorilla, adult female chimpanzee, adult male orangutan, and the two young gorillas (Colo and Bongo). These animals were then weighed, ID skin tested and radiographed. Oral and rectal swabs were also taken. The adult male orangutan and the young male gorilla were not anesthetized sufficiently to have radiographs taken, but this was done in a second test series.

An adult female gorilla being examined by Dr. Stilson and Dr. Schnurrenberger (left to right).

Reading of the 48 hr. test showed both young gorillas and the adult female gorilla to have a definite positive skin test. The adult male orangutan was questionable, and the female chimpanzee was negative. The 72 hr. readings showed all of the animals tested to have positive skin tests except the female chimpanzee, who didn't have any visible reaction.

After the positive Tuberculin tests in four out of five animals in the Great Ape House...
collection, Dr. Savoy placed the building under strict quarantine and instigated maximum safety precautions for the two animal attendants.

On March 15, 1963, the same medical team, plus Dr. Donnerberg and assistants from the Ohio Tuberculosis Hospital, finished testing the remainder of the Great Ape Collection. Dr. Donnerberg made gastric lavages and took blood samples from the animals tested.

The adult male chimpanzee was the only animal in this group to take the entire SERNVLAN dose orally. The adult female orangutan refused the drug completely and was given the entire dose intramuscularly while restrained in a squeeze cage. The adult male gorilla took about one-half of the correct oral dose and the remainder was given to him with a capture gun. The adult male orangutan took only a portion of his oral dose; so the team roped him and injected the remainder IM.

These four animals were then given ID Tuberculin tests, radiographed and weighed. Blood samples, gastric lavages, rectal swabs and throat swabs were also taken. The 72 hr. skin tests were considered positive on all four primates.

Radiographic studies were made on all members of the Great Ape collection except the young male gorilla. The adult male chimpanzee showed definite radiographic signs of tuberculin pneumonia. The adult female gorilla and adult female orangutan were considered tuberculin suspects, since both showed pneumonia-like lesions, but no definite cavity formation. The rest of the collection showed no signs of pulmonary tuberculosis according to radiographic study.

Preliminary laboratory findings indicate that none of the animals are shedding acid-fast organisms, but the cultures have not been carried on long enough at this time to make a positive statement. This is based on laboratory studies of fecals, blood samples, gastric lavages, and throat swabs.

Treatment of these large primates has proved to be quite a problem. Isoniazid (INH) and Para-Amino Salicylic Acid (PAS) are the drugs being used. Dosages are: 14 mg. per Kg. of INH and 150-200 mg. per Kg. of PAS. The problem is to get the animals to drink or eat the medicine daily, and in large enough dosages to be effective. Coca-Cola, orange juice, jello, Cream of Wheat, ice cream, and grape juice have all been tried. The drug was even mixed with the animals' normal food that had been ground up in blenders. All of these methods have met with only partial success, but plain grape drink has been the most successful. All of the animals will take their proper treatment in the grape drink except the adult male gorilla and the female orangutan. Treatment is expected to last for 12-24 months.

The Great Apes are still on display at the zoo, except they are separated from the public by glass partitions. The animals are not permitted in their outside cages and no one except the authorized keepers and the zoo administrative staff are permitted in the building.

It is still too early for an accurate prognosis, but early results are somewhat encouraging and the zoological staff have hopes of treating and arresting the majority of the infected animals.
According to the Graduate School Record there were eight students enrolled in graduate school and associated with Veterinary Medicine during Winter quarter 1951. Twelve years later there were twenty-five such students representing an increase of more than three times. Obviously, the recent trend toward much more graduate education in many colleges is reflected also in the Veterinary College.

The following is a list of the veterinarians directly associated with the Veterinary College and actively engaged in obtaining an advanced degree from Ohio State during Spring quarter of this year.

**ANATOMY**

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<th>Name</th>
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<th>Work and Interests</th>
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<td>Horowitz, Aaron</td>
<td>O.S.U. D.V.M. (1954)</td>
<td>Presently working on his Ph.D. with research in the area of the stomach and intestinal blood vessels of the ox and goat.</td>
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**BACTERIOLOGY**

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<th>Work and Interests</th>
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<tr>
<td>Kohler, Erwin</td>
<td>O.S.U. D.V.M. (1955) and M.Sc. (1959)</td>
<td>Masters work dealt with <em>E. coli</em> in germ-free pigs. Presently taking course work for his Ph.D.</td>
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**MEDICINE**

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<tr>
<th>Name</th>
<th>School and Degree</th>
<th>Work and Interests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Murdick, Philip W.</td>
<td>O.S.U. D.V.M. (1952) and M.Sc. (1959)</td>
<td>Presently working toward a Ph.D. in the Department of Physiology. He is studying the electrical activity of the uterus in pregnancy and parturition of sheep.</td>
</tr>
</tbody>
</table>

**PARASITOLOGY**

<table>
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<tr>
<th>Name</th>
<th>School and Degree</th>
<th>Work and Interests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scothorn, Marion W.</td>
<td>O.S.U. D.V.M. (1933)</td>
<td>Received his M.Sc. this June. Dr. Scothorn's work included a study of the larval migrans of <em>Toxocara canis</em>.</td>
</tr>
</tbody>
</table>

**PATHOLOGY**

<table>
<thead>
<tr>
<th>Name</th>
<th>School and Degree</th>
<th>Work and Interests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Del Favero, John E.</td>
<td>Mich. State D.V.M. (1961)</td>
<td>Working in the area of electron microscopy and enzyme histochemistry of animal neoplasms that have been treated with various methods of therapy.</td>
</tr>
<tr>
<td>Gibson, John P.</td>
<td>Kansas State College D.V.M. and M.Sc. (1959)</td>
<td>Working in the area of the effects of virus on germ-free dogs for his Ph.D.</td>
</tr>
<tr>
<td>Holman, John</td>
<td>Missouri B.Sc. (1956), D.V.M. (1959)</td>
<td>Presently taking course work for his Ph.D. Dr. Holman is associated with the Department of Public Health.</td>
</tr>
</tbody>
</table>

SPRING, 1963
Loeb, Walter F.
Dr. Loeb received his V.M.D. from the University of Penn. in 1955 and M.Sc. from O.S.U. in 1956.

Pakes, Steven
Dr. Pakes received his B.Sc. (1956) and D.V.M. (1960) from O.S.U. He is studying chromosome analysis of domestic animals for his Ph.D. Dr. Pakes is also a captain in the U.S. Veterinary Corps.

Rohovsky, Michael W.
Dr. Rohovsky received his D.V.M. from O.S.U. in 1960. He presently working on his M.Sc. in the area of viral neoplasia.

Storts, Ralph W.
Dr. Storts received his D.V.M. (1957) from O.S.U. and M.Sc. in 1961 at Purdue. He is currently taking course work and plans to study some aspect of the nervous system for his Ph.D.

PHYSIOLOGY
Crocker, Harold
Dr. Crocker received his D.V.M. from O.S.U. in 1961. He is presently studying the cardiac activation processes in horses and cattle for his M.Sc.

Smetzer, David
Dr. Smetzer received his B.Sc. (1957) and D.V.M. (1961) from O.S.U. For his M.Sc. he is studying the fourth heart sound in horses.

PREVENTIVE MEDICINE
Buller, Rex D.
Dr. Buller received his D.V.M. from O.S.U. in 1961. He is presently taking course work for his M.Sc. and plans to study some phase of immunology.

Linerode, Philip
Dr. Linerode received his D.V.M. from O.S.U. in 1958 and his M.Sc. from the University of Minn. in 1960. He is working on his Ph.D. in immunology and nutrition—resistance and stress factors.

SURGERY AND RADIOLOGY
Slusher, Ralph
Dr. Slusher received his D.V.M. from O.S.U. in 1954. He is working on his M.Sc. in diagnostic radiology and X-ray therapy.

OTHERS:
Long, John
Dr. Long is with the State Diagnostic Laboratory at Reynoldsburg. However, he is associated with the Department of Pathology at O.S.U. in his studies in neuropathology for a Ph.D. Dr. Long received his B.A. (1947), M.Sc. (1948), and D.V.M. (1955) at O.S.U.

ALPHA PSI NEWS

BY JON ELLIS, Vet. Med. II

Speaker's meetings of the Spring Quarter got under way with Dr. Sam Thomas showing color movies on large animal surgery in the field. A later meeting consisted of a speech entitled "Game Research in Ohio" by a member of the Ohio Wildlife Division, Ken Russel.

Elections were held and the officers are: President, Russ Nyland; Vice-president, Hugh Harroff; Secretary, Joe Reager; Corresponding Secretary, Jon Ellis; Treasurer, Barry Long; Assistant Treasurer, Lee McPhail; House Manager, Jim Aftomis, and Steward, Norm Pinfold. We are looking forward to an outstanding program of events next year.

We have had one house party this quarter and a good time was enjoyed by all. A trio sounding very much like the Kingston Trio performed.

According to the fellows on the softball teams, they are the greatest, but when
inquiry is made about won and lost records, none are available.

The Senior Send-off was the highlight of the Spring Quarter social calendar. A dinner-dance was held on Saturday, April 27, at Hi Timbers. A gala time was had by those attending, especially the seniors. Our seniors are looking forward to graduation and we wish them luck in their endeavors. At the banquet Keith Sugasaki was presented the Priestly award for the outstanding Sophomore and Ray Glick was presented the Outstanding Junior Award, based on scholarship and fraternity service.

In closing, Alpha Psi congratulates the staff of The Speculum for a job well done during the past school year.

YOU'RE THE DOCTOR

BY BOB RAINIER, Vet. Med. IV

1. It was a relatively quiet evening when Mrs. Rubeldorfer entered the office of the Mayo Veterinary Clinic carrying her seven-year-old Cocker bitch. Dr. Mayo noticed an expression of concern on the client's face as the dog had never acted this way before. "Jenifer hasn't eaten a thing for two days, but she will drink water, although she vomited twice today. She acts as if she doesn't even recognize me." The dog had whelped about two months ago and one pup died but no apparent post-partum complications had been encountered. The dog appeared to be in a fairly good nutritional state even though the abdomen was somewhat distended. Jenifer had been quite a show dog and had just come off the circuit about a month prior to whelping. A physical examination revealed a considerably depressed animal with slightly pale mucous membranes, the corneas lacked the normal luster, temperature 103°, normal heart sounds and heart rate, respiratory sounds were slightly harsh in areas of cardiac lobes, abdominal enlargement of undetermined cause was present, and a mild degree of dyspnea was observed. There was no abnormal nasal, ocular, or vaginal discharge. Laboratory tests revealed the following:

Urinalysis from a catheterized specimen, Sp. gr. 1.030, Albumin 100 mg%, Glucose—negative, no casts or crystals, WBC—2 to 4 per h.p.f., RBC—0 to 1 per h.p.f., Epithelial cells—4 to 6 per h.p.f.; CBC, Hb 8.5, HCT 27%, WBC 93,250, Segs 63, Bands 27, Lymphs 10. What is your diagnosis and prognosis?

2. It was about the first part of June when Dr. Callemrite was called to investigate a problem that Greenside Farms was having with their cattle. The herd was a group of feeder steers that had been purchased from Virginia the previous winter as small calves. Four of the steers had already died in the past five days and a couple more looked as if they wouldn't make it through the day. The herdsman explained that the four steers that had died first looked rather weak, salivated considerably, dyspneic, and died within 6 to 12 hours after signs were first noticed. One steer was described as dying following a convulsion. The two steers that presently were quite sick also were showing some of these signs as well as being bloated, trembling, rapid heart rate, and temperatures of 99.6°F and 100.2°F. "It's a cinch these cattle aren't dying from starvation," Dr. Callemrite told the herdsman as he pointed to the obviously well fertilized oat pasture. "How long have they been in here?" "About a week I guess, ever since we fed out all of our old hay," was the herdsman's reply. As the two started to walk back to the car, the largest of the two sick steers suddenly collapsed and died. The post-mortem examination revealed slight congestion of the abomasum and pericardium and a rather brown colored liver and spleen which contained somewhat brownish colored blood upon excision. What is your diagnosis?

ANSWERS:

1. Prominent is good J outer

2. Niere posponite

To Insure Receiving Your Speculum Please Notify The Circulation Department of Any Change in Address
Best Wishes
to the
Class of ’63

And as we extend congratulations upon your completion of six years of arduous study, we also wish you every success in your career as a Doctor of Veterinary Medicine.

Fort Dodge Laboratories
Fort Dodge, Iowa
ALUMNI NEWS

By Bruce Briggs, Vet. Med. II

1910

Dr. Bruce Wooney died in January at his hometown of Johnstown, Ohio, at the age of 78.

1911

Dr. John A. Wende passed away on January 1, in Buffalo, N.Y.
Dr. Albion C. Farmer, Oneonta, N.Y., died on January 6, following a long illness. Dr. Farmer was retired from U.S. government service where he was engaged in tuberculosis eradication and in the animal inspection and quarantine division of the Canadian border.

1914

Dr. Joseph F. Derivan, New Vienna, Ohio, is enjoying retirement.

1915

Dr. Elmer S. Augsburger died on December 12, 1962, at Lima, Ohio.
Dr. Lee M. Roderick, Professor Emeritus and Head of the Department of Pathology, School of Veterinary Medicine, Kansas State University from 1938 to 1960 passed away March 13, after a lingering illness at Falls Church, Virginia. Dr. Roderick’s early research led to the discovery of the anticoagulant drug, dicumarol. He was also well known for his research on avian tuberculosis, ketosis, brucellosis, hog cholera, sweet clover disease, malignant catarrhal fever, and equine encephalomyelitis.

1930

Dr. Earl N. Moore has recently returned to India as coordinator of the Ford Foundation’s Animal Industry Program. Dr. Moore had recently served as a poultry pathologist on Kansas State University’s team to India for six years.

1934

Dr. A. G. Madden, Madeira, has recently been elected the new president of the Ohio State Board of Agriculture.

1937

Dr. J. N. Karcher, Minneapolis, was installed in January as the president of the Minnesota Veterinary Medical Association. Dr. T. P. Nandervis (1931), Eveleth, was elected first vice-president of the same organization.

1938

Dr. Robert A. Rands, a small animal practitioner in Stamford, Conn., was elected president of the Connecticut Veterinary Medical Association.

1943

Dr. David O. Jones, Professor of Veterinary Preventive Medicine at Ohio State University, is a councilor of the American Board of Veterinary Public Health.

1944

Dr. William L. Hannawalt is a veterinarian in the meat inspection division of the Department of Agriculture in Greenfield, Ohio.

1946

Dr. C. W. Field, Columbus Grove, Ohio, has been elected president of the Ohio Fair Managers Association.

1947

Dr. Samuel C. Schmittle is Director of Poultry Diseases Research Center at the University of Georgia in Athens.

1948

Dr. Herald E. Lusk, 62, died of a heart attack February 7, at Goshen, Indiana where he had been a federal poultry inspector for fifteen years.

1949

Dr. Taylor A. Bragg Jr. is a veterinarian at Monroe (Georgia) Veterinary Clinic.
The Pre-Veterinary Medical Association

By Anne E. Hauserman

The Ohio State University Pre-Veterinary Medical Association is a long name for a new organization. The P.V.M.A., or "Pre-Vet Club," was started in 1962 under the Ohio State Student Chapter of the American Veterinary Medical Association as an organization for students preparing to enter The Ohio State University College of Veterinary Medicine. The purpose of the Association (quoting from its constitution) is "to provide an opportunity for students planning to enter the College of Veterinary Medicine to survey the field of veterinary medicine . . . and to develop closer ties of friendship among the pre-vet students and with the faculty of the College of Veterinary Medicine. With the guidance of Dr. W. Keith Wearly, the club's advisor, and Dean Krauss, the first president, the Pre-Veterinary Medical Association has made an excellent start in fulfilling its purpose. It had been patterned after the pre-vet clubs of various other universities and has been adapted to the needs of the students at this university.

The year-old organization has a membership of 177 undergraduate students; its three "extragraduate" members, Dean Krill, Dr. Venzke, and Dr. Wearly, bringing the total to 180. As one of the larger undergraduate organizations, its first year has been quite active. The meetings are scheduled for the second Wednesday of each month. Last November's meeting at which Dr. Venzke spoke on the "Application Procedure for Veterinary School," had the largest attendance.

Since it is helpful to the student to know something specific about the profession for which he is studying, various aspects of the field of veterinary medicine were surveyed in the programs given during the Winter Quarter. Dr. Tharp showed a movie of his trip to Montana and discussed the opportunities for veteri-
narians interested in working for large ranches, supervising the health of cattle and sheep. At the next meeting, Dr. Tyznik of the Animal Science Department, spoke on the nutritional aspects of veterinary medicine, and the final meeting of the quarter was held jointly with the Student Chapter of the American Veterinary Medical Association. The speaker that night, “Woody” Hayes, did not discuss much pertinent to the field of veterinary medicine, but gave a fine talk in his own field. The Spring Quarter schedule included the election of new officers, and a picnic held May 8, at the Park of Roses; much the same sort of function as its parent organization, the Student Chapter of the A.V.M.A., has held upon occasion.

Plans for next year include several things. The Association has petitioned for a seat on the All Agricultural College Council. Since the majority of the club's students are enrolled in the College of Agriculture, it is only logical to have representation on the College council. The tentatively scheduled programs include Dr. Venzke's address on application procedure, a talk on animal handling methods, another of Dr. Tharp's movies, and something by Dr. Cline of the Animal Science Department, as well as another social event.

In review, the past year has seemed too brief to have done all the things we had planned, although the programs that could not be fit into the schedule this year, will provide a start for next year. Through the meetings and the association with some of the faculty members of the College, we have learned a lot about the profession. The "Pre-Vet Club" has benefited the students in pre-veterinary medicine. On the other hand, Dean Krill and Dr. Venzke have said that the Association has been very successful. They both feel that the quality of the applicants over the past year has improved. The applicants' average accumulative grade point hour is higher, and although it is still too soon to be sure, it is hoped that the College drop-out rate will decrease. The Ohio State Pre-Veterinary Medical Association is still in the experimental stage, but it has, in its first year, justified its existence, thanks to those who have been so generous and helpful.
The man in the driver's seat needs to count on every working part at his command. The modern veterinarian relies on modern, ethical drugs in the fight toward the finish line. Call us for ethical products of known value and efficiency.

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GRAIN BELT SUPPLY CO.

Kenton, Ohio 130 South Detroit Street
Class of 1963
BY DAVID BERLINER, Vet. Med. IV
IN RETROSPECT

It is with pride in some instances, and amusement in others, that we look back on the four years in the College of Veterinary Medicine just completed by our Class of 1963.

How well we remember our first frantic days as freshmen, awed by the “weighty” textbooks covering Anatomy and Histology, and bleary-eyed from long hours at our microscopes. On the lighter side, however, we participated in the College’s first “Pre-Vet Day” and in the revival of “Fun Night” as Juniors.

And our class had “personality.” There was Merv Waldman to entertain us and cheer us when our instructors were late for class; and George Norris who could get you anything you needed at “his” prices. It’s been rumored that George may get the concessions for selling old bricks from the present clinic when it makes way for the new clinic. We can remember how we cheered when “Sandy” Flynn announced that the “horse” didn’t come in, and how Dwight Hillman maintained his leadership in adding to the “gross national product” despite heavy competition from Fred Denton, Marv Hyde, and Jack Heinemann.

We can reminisce about the publication of Les Schwab’s “book”, The Rise and Fall of State Board Questions, which sold out in its first printing; and how the faculty, with “Ringer” Dean Krill leading the way, won a challenge match from our “Senior All-Star Bowling Team.”

Finally, we can look back and recall the long note-taking lectures by Dr. D. O. Jones as well as the wonderful picnic held at his place, “The Ranch,” just before graduation. But most of all, we remember that it all took four years, and that it is GREAT to be finished and embarking on a career in a great profession.

1963 GRADUATING SENIORS

The seniors who are graduating this June, 1963, are listed as follows with their degrees, organizations, and expected type of work and location upon graduation.

David L. Allen
D.V.M.
Omega Tau Sigma, AVMA
General Practice
Sabina, Ohio

William R. Arters
B.S., D.V.M.
Alpha Psi, AVMA
General Practice
Roosevelt, Utah

Carl T. Baker
B.S.(WVU), D.V.M.
AVMA
General Practice
Huntington, West Virginia

David H. Berliner
D.V.M.
Alpha Psi, AVMA
The Speculum, Student Council
Small Animal and Equine Practice
Great Neck, L.I., N.Y.

Nancy Ann Blanchard
D.V.M.
AVMA, Women’s Vet. Assoc.
The Link
Columbus, Ohio

Richard P. Bokanyi
D.V.M.
Omega Tau Sigma, AVMA
U.S. Army
Fort Gordon, Georgia

Irwin H. Bollinger, Jr.
D.V.M.
AVMA
USDA(ARS) (six months)
Cincinnati, Ohio
U.S. Army (Jan., 1964)

Garnard J. Boner
B.S., D.V.M.
AVMA, The Speculum
Large Animal Practice
Edinboro, Pa.
Ann Bowers
D.V.M.
Phi Zeta, AVMA
General Practice
Spring Valley, Ohio

Patrick T. Breen
D.V.M.
Omega Tau Sigma
Phi Zeta, AVMA
Small Animal Practice
Cincinnati, Ohio

Marcia C. Brown
D.V.M.
AVMA
General Practice
Avon Lake, Ohio

Walter Christopher
D.V.M.
AVMA
U.S. Army

Fred L. Denton
B.S., D.V.M.
AVMA
General Practice
Youngstown, Ohio

Lloyd S. Early, Jr.
D.V.M.
Alpha Psi
AVMA
General Practice
Shaker Heights, Ohio

Joe T. Fergus
D.V.M.
Alpha Psi
AVMA
St. Paris, Ohio

Alfred Flynn
D.V.M.
Omega Tau Sigma
Phi Zeta, AVMA
Small Animal Practice
Norfolk, Virginia

David L. Fox
B.S., D.V.M.
Alpha Psi, Alpha Gamma Rho
Loveland, Ohio

Stephen B. Gaw
D.V.M.
Alpha Psi, Alpha Gamma Rho
AVMA
U.S. Army
San Francisco, California

Paul M. Gordon
D.V.M.
Alpha Psi, AVMA
Bay Village, Ohio

Larry T. Grubbs
D.V.M.
Alpha Psi, AVMA, Student Council
Internship, Large Animal Surgery
Iowa State University
Ames, Iowa

Jack E. Hathaway
D.V.M.
Omega Tau Sigma, AVMA
Phi Zeta, The SPECULUM
Vet. Research Assoc.
Internship, Angell Memorial Animal Hosp.
Boston, Mass.

Jack E. Heinemann
A.B., B.S., D.V.M.
Phi Zeta, AVMA
U.S. Air Force
Wright Patterson AFB, Ohio

Joseph W. Henry, Jr.
D.V.M.
Alpha Psi, AVMA
General Practice
Cincinnati, Ohio

James L. Henschen
D.V.M.
AVMA
General Practice
Botkins, Ohio

George W. Hess
D.V.M.
Omega Tau Sigma, AVMA
Morgantown, West Virginia

Dwight E. Hillman
B.S., D.V.M.
AVMA
Ashland, Kentucky

John H. Howard
B.S., D.V.M.
Alpha Psi, Delta Tau Delta
Pre-Vet. Day Committee Chair.
General Practice
Winter Haven, Florida

James E. Hugenberg
B.S., D.V.M.
Sigma Chi, Alpha Psi, AVMA
Internship, N.Y. Animal Med. Center
New York, N.Y.
<table>
<thead>
<tr>
<th>Name</th>
<th>Degree(s)</th>
<th>Clubs</th>
<th>Practice Type</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marvin Hyde</td>
<td>B.S., D.V.M.</td>
<td>AVMA</td>
<td>Small Animal and Dairy Practice</td>
<td>Dover, Ohio</td>
</tr>
<tr>
<td>David K. Hysell</td>
<td>D.V.M.</td>
<td>AVMA, Phi Zeta, Alpha Psi</td>
<td>U.S. Army (Walter Reed Med. Center)</td>
<td>Washington, D.C.</td>
</tr>
<tr>
<td>Robert L. Jackson</td>
<td>D.V.M.</td>
<td>AVMA</td>
<td>Large Animal Practice</td>
<td>Canton, Ohio</td>
</tr>
<tr>
<td>Joe M. Judy</td>
<td>D.V.M.</td>
<td>AVMA, The Speculum</td>
<td>General Practice</td>
<td>Butler, Penna.</td>
</tr>
<tr>
<td>Gary Korsgaard</td>
<td>D.V.M.</td>
<td>Alpha Psi, Alpha Gamma Rh, AVMA</td>
<td>U.S. Army</td>
<td></td>
</tr>
<tr>
<td>Raymond A. Krajewski</td>
<td>B.S., D.V.M.</td>
<td>Wildlife Research Forum, Zoology Club</td>
<td>Exotic animals, wildlife, and small animals</td>
<td>Cleveland Heights, Ohio</td>
</tr>
<tr>
<td>Alvin G. Kron</td>
<td>B.S., D.V.M.</td>
<td>Phi Zeta, AVMA, Alpha Tau Omega</td>
<td>Meat Inspection</td>
<td>Cincinnati, Ohio</td>
</tr>
<tr>
<td>John A. LaBelle</td>
<td>B.S., M.S., D.V.M.</td>
<td>Omega Tau Sigma, Phi Zeta, AVMA</td>
<td>Equine Practice</td>
<td>Saratoga Springs, N.Y.</td>
</tr>
<tr>
<td>Lowell P. Lambert</td>
<td>D.V.M.</td>
<td>AVMA</td>
<td>Small Animal Practice</td>
<td>Detroit, Michigan</td>
</tr>
<tr>
<td>David Lippert</td>
<td>D.V.M.</td>
<td>Omega Tau Sigma</td>
<td>General Practice</td>
<td>Meadville, Pa.</td>
</tr>
<tr>
<td>Roger K. McInturf</td>
<td>B.S., D.V.M.</td>
<td>Omega Tau Sigma, AVMA</td>
<td>AVMA, Senior Class Treasurer</td>
<td>General Practice, Columbus, Ohio</td>
</tr>
<tr>
<td>Thomas W. Moore</td>
<td>D.V.M.</td>
<td>Omega Tau Sigma, AVMA</td>
<td>U.S. Army</td>
<td>Fort Knox, Kentucky</td>
</tr>
<tr>
<td>Thomas H. Mouat</td>
<td>D.V.M.</td>
<td>Omega Tau Sigma</td>
<td>Phi Zeta, AVMA</td>
<td>Pre-Vet. Day Committee, Small Animal Practice, Vandalia, Ohio</td>
</tr>
<tr>
<td>Charles A. Neer</td>
<td>D.V.M.</td>
<td>AVMA</td>
<td>U.S. Army</td>
<td>Fort Eutis, Virginia</td>
</tr>
<tr>
<td>George D. Norris</td>
<td>D.V.M.</td>
<td>Alpha Psi</td>
<td>Small Animal Practice</td>
<td>Worthington, Ohio</td>
</tr>
<tr>
<td>Eugene A. Novy</td>
<td>D.V.M.</td>
<td>Omega Tau Sigma, AVMA</td>
<td>South Euclid, Ohio</td>
<td></td>
</tr>
<tr>
<td>John G. Orthoefer</td>
<td>B.S., D.V.M.</td>
<td>Phi Zeta, AVMA</td>
<td>U.S. Public Health Service</td>
<td>Gahanna, Ohio</td>
</tr>
<tr>
<td>Gary L. Pearson</td>
<td>D.V.M.</td>
<td>Phi Eta Sigma, Wildlife Research Forum</td>
<td>Phi Zeta, AVMA</td>
<td>Fremont, Ohio</td>
</tr>
<tr>
<td>Bob Rainier</td>
<td>B.S., D.V.M.</td>
<td>Phi Zeta, AVMA</td>
<td>Small Animal Practice</td>
<td>Durham, North Carolina</td>
</tr>
</tbody>
</table>
Arthur Sandler  
B.S., D.V.M.  
Omega Tau Sigma, Alpha Epsilon Pi  
The Speculum, Vet. Research Assoc.  
Ohio Society of Clinical Pathologists  
Small Animal and Clinical Pathology  
Dorchester, Mass.  
Ted N. Schobert  
D.V.M.  
Alpha Psi, AVMA  
Small Animal Practice  
U.S. Army  
Lester Schwab  
D.V.M.  
AVMA, Senior Class President  
Small Animal Practice  
Columbus, Ohio  
T. Michael Schwartz  
D.V.M.  
AVMA  
Fur-Bearing Animal Practice  
Ravenna, Ohio  
Allen Dean Sexton  
B.S., D.V.M.  
AVMA  
General Practice  
Marietta, Ohio  
Carol D. Sexton  
D.V.M.  
AVMA, Senior Class Secretary  
General Practice  
Marietta, Ohio  
John A. Shadduck  
D.V.M.  
Omega Tau Sigma, Phi Zeta, AVMA  
Graduate Study, Dep't. of Vet. Path.  
Ohio State University  
Columbus, Ohio  
Larry D. Sharp  
B.S., D.V.M.  
Phi Zeta  
AVMA  
Greenville, Ohio  
John H. Shelton  
D.V.M.  
Omega Tau Sigma  
AVMA, The Speculum  
U.S. Army  
Huntersville, West Virginia  
Charles R. Short  
D.V.M.  
Alpha Psi, AVMA  
Equine Practice  
Maple Heights, Ohio  
Larry L. Stackhouse  
D.V.M.  
Phi Zeta, AVMA  
U.S. Army  
Ft. Lewis, Washington  
Roger B. Thompson  
D.V.M.  
Omega Tau Sigma, Phi Zeta, AVMA  
Small Animal Practice (six months)  
Elyria, Ohio  
U.S. Army, Jan., 1964  
Gerald F. Toms  
D.V.M.  
AVMA  
Warren, Ohio  
Cletus M. Vonderwell  
B.S., D.V.M.  
AVMA  
Large Animal Practice  
Delphos, Ohio  
Mervin Waldman  
D.V.M.  
AVMA  
Greenville, Ohio  
Dale D. Walther  
D.V.M.  
Phi Zeta, AVMA  
Large Animal Practice  
Deshler, Ohio  
Roger R. Ward  
B.S., D.V.M.  
Omega Tau Sigma, AVMA  
General Practice  
Plymouth, Indiana  
James J. Weickert  
D.V.M.  
Omega Tau Sigma  
The Speculum, AVMA  
Small Animal Practice  
Cincinnati, Ohio  
Donald E. Welsh  
B.S., D.V.M.  
Omega Tau Sigma  
Senior Class Vice President  
General Practice  
Zanesville, Ohio  
Lauren G. Wolfe  
D.V.M.  
Omega Tau Sigma  
Phi Zeta, AVMA  
Graduate Study, Dep't. of Vet. Path.  
Ohio State University  
Columbus, Ohio
Here it is Spring once again, although we sometimes doubted that it would ever come. Spring brings the green leaves on the trees, many beautiful flowers, girls in bermuda shorts, and of course, fraternity activities. Although girls in bermudas may be more interesting to many people, we regret to say that the following paragraphs will deal with OTS and Spring.

Once again the appearance of sunshine and warm weather started muscles flexing. Even some of the avid golf fans left the links long enough to add a little softball to their life. And, thanks to the valiant efforts of these men and others, Omega Tau Sigma’s fast pitch team has completed an undefeated season. The team is now trying to get into shape even more as they enter the post-season tournament in hopes of bringing home a trophy.

The social calendar for Spring Quarter is always full of exciting events and has been a fitting end for a great year. Various house parties similar to the recent Roman Toga Party helped to fill the short weekends. The AVMA picnic offered an abundance of fun and food for all, while equal success was shared by the AVMA Recognition Banquet held May 25. However, the culmination of a long period of anticipation by the seniors and members of OTS was the Senior Send-off held at the Desert Inn on May 18.

The banquet was a tremendous success and everyone enjoyed themselves immensely. The menu, which was headed by a delicious tenderloin steak, was one of the high points of the evening. Of course, the seniors will attest to the pleasurable beverages served before and after the dinner. A well-deserved recognition of seniors including their announcements of plans followed. The already wonderful evening was then completed by a dance as Tommy Spafford’s band played on into the early morning hours.

With this evening of fun as our last social event of the year, we bid farewell to the seniors and congratulate them upon their graduation. We are sorry to see these men leave for they have been vital parts of this fraternity. They have made many valuable contributions to the fraternity and to their school for which they will long be remembered. Seniors, we wish you all good luck.
Diseases of the Canine Lens

BY JACK HATHAWAY, Vet. Med. IV

In order to recognize and successfully correct the diseases of the canine lens, a sound understanding of the normal crystalline lens—both anatomically and physiologically—must be kept in mind. Lens malfunctions are corrected surgically primarily via lens extractions. Intraocular surgical success depends not only upon the perfection of the surgical techniques, but also upon a sound knowledge of basic ophthalmology.

The Normal Canine Lens

The lens is a biconvex, gelatinous, transparent mass measuring approximately 9-11.5 mm. in diameter and 7 mm. thick in the anterior-posterior direction in the dog. Its size in relation to the entire globe forms a ratio of 1:8 to 1:10 of the lens to the globe respectively. This is one of the reasons (large proportionate size) for the difficulty encountered when performing a cataract extraction in the dog.

The lens is located behind the iris being suspended by the zonular ligaments or zonule of Zinn which connect the equator of the lens to the ciliary body. Its posterior surface fits into the hyaloid or patellar fossa, a concavity of the vitreous body.

The lens is enclosed in a capsule composed of a laminated, non-cellular membrane. A single layer of cuboidal cells covers the front of the lens just beneath this capsule. It is thought that this layer of cells is responsible for the secretion of the capsule; therefore, accounting for the increased thickness of the front of the capsule. The suspensory ligament or zonule of Zinn, which is responsible for the chief support of the lens, arises from the ciliary epithelium, passes forward between the ciliary processes and then fuses with the lens equator primarily with the front portion of the capsule. Some fibers meet exactly at the equator and others pass to the rear of lens capsule. The shape of the lens changes as the focal point changes (accommodation). The capsule is responsible for increasing the curvature of the lens. As the ciliary muscle contracts, the tension on the suspensory ligaments is lessened allowing the elastic capsule to reduce its equatorial diameter resulting in an increased lenticular surface by an increase in the anterior-posterior dimension. This power of accommodation is lost with age as the lens hardens throughout by an increase in the size of the nucleus.

Since the lens is one of the refractive media of the eye, it must be perfectly transparent. It must have proper curvature and its index of refraction must join with the other refractive media to result in an emmetropic eye. Since it receives no blood supply, it receives its nourishment from the aqueous humor. Its end products are removed via the same route without resulting in a loss of transparency. The lens appears to be homogenous in nature but its refractive power increases from the periphery to the center of the lens. It is composed of many layers which are stratified similar to the coats of an onion. These layers are formed from parallel bundles of fine fibers which are bound together by an amorphous medium. The nuclei of these fibers are located at the periphery for increased transparency. New fibers are formed continuously from the capsule near the equator. As these fibers are formed and grow toward the center of the lens, the older fibers are compressed thereby increasing the density of the lens from its surface to the center. As the dog ages, the nucleus becomes more dense from this compression of fibers and a loss of water. Since these fibers continue to form and grow throughout life, the size of the lens would soon exceed that of the eyeball if sclerosis did not occur. However, even with this compensatory sclerosis resulting in the forma-
tion of a dense, hard nucleus, the lens still enlarges as the animal increases in age.

The composition of the lens material consists of about 65% water—mainly found in the cortex. Changes in the water content may lead to changes in the refractive index. If water is retained by a lowering of the osmotic pressure of the fluids bathing the lens, it swells, producing a hyperopia. If, on the other hand, the osmotic pressure rises, the lens becomes dehydrated resulting in a myopia. This is why debilitating diseases such as distemper, hepatitis, diabetes mellitus and nephritis may result in visual changes. Protein forms most of the remaining portion of the lens’ composition—part of it in a soluble form and part of it is insoluble. Although the nucleus contains more total protein, the cortex contains more of the soluble form. In the lens, the protein is not only species specific, but it is also organ specific. This is why a severe uveitis may follow an extracapsular extraction when lens substance is left in the eye. It results in an anaphylactic reaction or allergic response. The cortex of the lens contains the highest concentration of minerals. The fluid bathing the fibers contains both sodium and chloride ions while potassium is found in the fibers themselves. The potassium decreases with age while the sodium and chloride concentration increase due to the sclerosing of the fibers. Carbohydrates form the sole substrate for energy requirements which in the lens is small since the only needs are for the maintenance of transparency, the development and growth of new fibers and the metabolic interchanges necessary to maintain the elasticity of the capsule.

Cataracts

Since the lens is an avascular tissue, injuries do not result in inflammation but instead by proliferation of the capsule epithelium. As a result, the transparency of the lens is changed by circumscribed or diffuse opacities called cataracts. A cataract may simply be defined as an opacity of the lens or its capsule.

Cataracts are common in dogs often being seen in approximately eighty per cent of all senile dogs. They may be congenital in nature occurring in young dogs or acquired during which they may be seen in dogs of any age.

Besides the loss of transparency resulting in a bluish-white appearance of the eye, cataracts may be diagnosed in their early stages by shadows on the retina when a funduscopic examination is made if the opacities are minute in size. The Purkinje-Sanson images may also be used as they are lost along with the transparency. These images are formed as a light reflects onto the cornea, the anterior capsule of the lens, and the posterior capsule of the lens—the latter producing an inverted image.

When the lens capsule is ruptured allowing aqueous humor to enter the lens, cataractous degeneration of the lens fibers occurs. These changes follow an alteration of the physical-chemical processes inside the lens. The lens fibers respond by swelling which may be reversible or, with protein coagulation, irreversible thus becoming denatured and flocculant. In senile cataracts, the protein is decomposed by proteolytic enzymes changing the lens media from alkaline to acid and precipitating the soluble protein. The lipoids and calcium increase in cataract formation and hydration is followed by degeneration, decreased lens metabolism, and the permeability of the lens is diminished. The epithelium and lens substance are often affected in cataract formation. The lens fibers may become autolyzed or necrotic if they are not sclerosed in the nucleus.

Juvenile or Congenital Cataracts

In congenital cataracts, only a circumscribed stratum of fibers is involved and the demarcation from normal zones is sharp and apparent. This type of cataract presents a bluish-white or milky appearance and the lens remains soft with the contents, although generally fluid in nature, containing particles of solidified lens material. This type of cataract is seen from birth up to five years of age.
When this cataract is present from birth, it may result from one of several causes: (1) The hyaloid artery which supplied the embryonic vitreous may have failed to regress, (2) The lens fibers possess an abnormal arrangement resulting in a loss of transparency, (3) Drops of fluid may be present between the cortical and nuclear portions of the lens, (4) Injuries during the gestation period may influence cataract formation, (5) Maternal illness may present a problem and finally, (6) Genetics may come into play since familial cataracts are not infrequent. 3

Investigators 1 have proven that this trait (congenital cataracts) has a genetic basis since it was transmitted from parent to offspring via the male gamete. The incidence of cataracts was high and they discovered this trait was not sex-linked since both males and females were affected. This trait was demonstrated in a beagle colony, but it has also been reported as occurring in German shepherds, pointers and cocker spaniels. The pups with complete cataractous eyes showed three outstanding lesions — microphthalmia, retinal folding and lens opacity. Those with partial cataracts exhibited a slight microphthalmia and retinal folding. They felt that this type of cataract was best explained as a defect in the development of secondary lens fibers apparently as a result of incomplete lens capsular continuity.

**Complicated or Secondary Cataracts**

Complicated cataracts include those occurring secondarily to a local ocular disease or injury or systemic diseases. Ocular changes such as uveitis, glaucoma, retinitis pigmentosa, retinal detachment and intraocular tumors and trauma may cause this type of cataract formation. Although the diagnosis is based upon the ocular changes lying behind it, a rosettelike opacity beneath the posterior capsule being most dense at the posterior pole of the lens is the characteristic appearance. Any severe systemic disease may also lead to cataract formation. 3

**Senile Cataracts**

Senile cataracts are the most common and are seen in dogs over five years of age. They are caused by the various degenerative processes that come into being as senility is reached. These causative agents may arise from the surrounding tissues. Incriminating causes of senile cataracts are as follows: (1) Senile changes, (2) Nutritional deficiencies, (3) General arteriosclerosis, (4) Dysfunction of various endocrine glands, (5) Specific lentotoxins such as napthalene (Mothballs), (6) Radiant energy, (7) Ciliary epithelial changes, and (8) Deficiency of genital hormones. 3

Senile cataracts appear uniformly opaque and are white or gray in appearance. The lens is of normal size. After a long period of time, the lens becomes pearly white in color and decreases in size. In contrast, with congenital cataracts, the lens is swollen with extreme cortical radiations and the anterior chamber appears reduced in size due to the swelling of the lens.

**Luxation of the Lens**

Lens luxations are also seen in the dog. They may be partial or complete and unilateral or bilateral. Certain breeds such as Wirehair Terriers, Scottish Terriers and Sealyhams seem to be predisposed to this condition. Severe trauma may result in a lens luxation as well as neoplasia. A sudden reduction of pressure or tension may lead to this condition such as occurs when an ulcer penetrates the cornea causing a rapid loss of aqueous humor. Atrophy of the zonules of Zinn will also result in lens luxation.

A luxated lens may be seen in the anterior chamber of the eye or they may be found lodged behind the iris. In posterior luxations, the lens margin may be seen. Iridodonesis is generally observed as the iris normally rests upon the surface of an intact lens. An aphakic crescent may be visible due to the visualization of the tapetum lucidum. Occasionally, the zonular fibers may be seen protruding from below the iris onto the anterior surface of the lens or floating into the anterior chamber of the eye. This condition may lead to no difficulties or it
may result in cataract formation, secondary glaucoma, iridocyclitis or corneal lesions due to endothelial damage. Surgical removal prevents these secondary complications from occurring if it is accomplished during the early stages. In cases of marked retinal changes, advanced episcleral vascularization and absence of the pupillary reflex, enucleation should be considered.

Lens Extractions

In the dog, there are two general indications for performing a lens extraction. These are to preserve some vision in cases of dislocations and to restore some vision when a cataract has resulted in a severe impairment or complete loss of vision.

First of all, let us consider the rationale of cataract surgery in the dog. An artificial lens or glasses are not needed following lens removal in the dog since the need for visual acuity is greatly reduced when compared to that of man and also the physiology and optics of the two species differ. A loss of the lens results in insufficient refracting power due to a change in the dioptric system and a loss of accommodation. First, a dog accommodates poorly with a normal intact lens so its absence would have little effect in this respect. Secondly, since the dog is normally myopic or near-sighted, he would not require as strong an artificial lens as man if one was used. In fact, highly myopic humans can see clearly following a lens extraction since when it is intact they have an overabundance of focusing power. It is the cornea which is largely responsible for focusing the image on the retina. The lens acts similar to the fine adjustment on a microscope with the cornea serving as the coarse adjustment. Blind dogs have experienced not only a return of ambulatory vision following a cataractous lens extraction but are even able to run and play without any hesitancy. Following cataract surgery, the size of the image falling upon the retina is altered so that when these signals are transmitted to the brain, they become misinterpreted at first especially as to localization. Therefore, the conscious mind must relearn to interpret retinal stimuli. This adjustment occurs rapidly, fortunately, but time must be considered.

Successful cataract surgery depends upon the following: (1) A good basic knowledge of ophthalmology, (2) Application of a good surgical technique and its perfection, (3) Proper evaluation and selection of each case, and (4) Adequate pre-operative and post-operative care. The age of the dog, the degree of pre-operative myopia plus the absence of complications have a bearing on the degree of visual return. Failures are attributed to poor surgical techniques or to improper selection of cases and not to the operation in principle. The steps which should precede the endorsement of a cataract operation include a careful examination of the adnexia for infection, the determination of the tension of the eye by digital palpation or tonometry (glaucoma), a urinalysis (C.I.N.), a general physical examination in the middle-aged to older patient, a check of the pupillary response to light and of course, funduscopic examination if possible. Interference with the pupillary reflex is considered indicative of retinopathy. The retina should always be checked following surgery to give a prognosis.

Pre-Operative and Post-Operative Care

A summary of the pre-operative care deemed important by the various ocular surgeons will now be presented. Adequate preparation of the eye and adnexia includes clipping of the hair (2" wide around eye) and eyelashes plus the cleansing of these areas with a suitable antiseptic. The application of an antibiotic ointment to the eye two to four days prior to surgery was considered important by all the surgeons. Atropine was used to accomplish mydriasis. Carbonic anhydrase inhibitors were also utilized prior to surgery to lower intraocular tension. An additional technique utilized by Magrane and Vierheller is the retrobulbar injection of Cyclaine to aid in reducing intraocular tension; thereby, reducing the chance of vitreous loss plus
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The new, 50-story Americana Hotel (1) will be headquarters for AVMA delegates, and other carefully selected hotels: Victoria (2); The Abbey (3); Taft (4); Park-Sheraton (5); Barbizon-Plaza (6); and the St. Moritz (7) will put AVMA conventioneers in the middle of all the excitement that is New York City!

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INSTRUCTIONS AND INFORMATION

Please give all of the information requested below and mail this form to the AVMA Housing Bureau.

Placement will be made in the order received. Your choice of hotels will be followed if rooms are available. Otherwise, assignment will be made to best possible advantage elsewhere. You will receive a confirmation directly from the hotel.

CENTENNIAL MEETING HOTELS

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*FAMILY PLAN—One child under 14 years of age will be accommodated in the same room with his parents at no extra charge. If more than one room is required to accommodate children, the hotel will charge only the single rate for each room. Rollaway beds are available in other hotels at a nominal cost. (The St. Moritz also has special family suites from $22 to $28 per day.)

APPLICATION FOR HOTEL ACCOMMODATIONS

Mail to: AVMA Housing Bureau
New York Convention and Visitors Bureau
44 E. 42nd Street
New York 17, N. Y.

CHOICES OF HOTELS: 1st CHOICE: HOTEL ____________________________ 3rd CHOICE: HOTEL ____________________________
2nd CHOICE: HOTEL ____________________________ 4th CHOICE: HOTEL ____________________________

ACCOMMODATIONS DESIRED: RATES DESIRED

| Room(s) with one bed for one person (Single) | $ ___________ to $ ___________ |
| Room(s) with twin beds for two persons (Twin) | $ ___________ to $ ___________ |
| Room(s) with one bed for two persons (Double) | $ ___________ to $ ___________ |
| Suite(s) parlor and one bedroom | $ ___________ to $ ___________ |
| Suite(s) parlor and two bedrooms | $ ___________ to $ ___________ |

ARRIVAL TIME: Date ____________ Hour ____________ DEPARTURE TIME: Date ____________ Hour ____________

LIST NAMES OF ALL PERSONS WHO WILL OCCUPY EACH ROOM:

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STREET ADDRESS ____________________________

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SPRING, 1963
elevating the eyeball while blocking the ciliary nerves. Magrane uses 1 cc. of 5% Cyclaine while Vierheller uses 5 cc. of a 0.5% solution.

Although it may be like putting the cart before the horse, the post-operative care will now be discussed since it is highly important to a successful operation. Following the operation, the pupil should be kept widely dilated with atropine for a period of one to two months following the extracapsular operation. Antibiotic ointments should be instilled for about one week at which time an antibiotic-steroid ointment may be used. Protective dressings applied to the eye for five to six days are a good idea. The sutures may be removed in about ten days, but the animal should be hospitalized for two weeks during which time the dog should be kept quiet and prevented from irritating the eye.

Surgical Techniques

Prior to settling on a technique, the operative complications and advantages of each should be evaluated. Some investigators, such as Knight, prefer the intracapsular method in which the entire lens is removed intact while others such as Magrane prefer the extracapsular method. If the use of alpha-chymotrypsin could be used satisfactorily in all cases, then there is no doubt that the intracapsular method would be the one of choice. While some investigators have reported its use as effective for dissolving the tough zonular ligaments which hold the lens in place, others have found its use very disappointing.

In the extracapsular method, the anterior lens capsule is opened and the lens is expressed through the opening removing both the nucleus and cortex while leaving the posterior lens capsule intact. The advantages of this method are that since the posterior lens capsule is left intact, there is less chance of vitreous loss and since the zonules are left intact, it eliminates the difficult job of breaking down these ligaments; thereby, reducing the risk of damaging the iris and ciliary body. The disadvantages are that irido-capsular synechia formation may occur, secondary cataracts may form and iridocyclitis may result due to irritation from lens fragments left in the anterior chamber.

The intracapsular method refers to the technique of removing the lens and its capsule intact after severing the zonular ligaments. The lens is extracted via forceps applied to the capsule, an erisiphake which is a suction device applied to the capsule, or pressure applied to outside of the globe by a lens expressor. This is probably the ideal method if it can be accomplished leaving the hyaloid membrane intact and avoiding injury to the iris and ciliary body. The zonules may be detached via forceps and a vectis. However, this is no easy task especially in young dogs since these zonules are more resistant. There is also said to be an attachment between the posterior lens capsule and the hyaloid fossa of the vitreous body in the dog. Enzymatic zonulolysis would enable this method to be used without mechanically breaking down these zonules. Mechanical breakdown often results in rupture of the anterior lens capsule, hemorrhage from the iris, injuries to the iris and ciliary body and the loss of vitreous if the hyaloid membrane is ruptured. This then leads to retinal detachment and infection resulting in total blindness.

Alpha-chymotrypsin has been used successfully by Startup.\(^1\)\(^5\) It is an endopeptidase possessing a fibrinolytic and proteolytic action similar to trypsin but has its own specificity. It has a selective action on the lens zonules and when injected into the anterior chamber of the eye causes subluxation of the lens within a few minutes. It has no adverse effects on other intraocular structures. He used a product called "Zonulolysin" which is packaged in 1 mg. ampules. It is reconstituted with 0.5 ml. saline to produce a 1:500 solution. After entering the anterior chamber of the eye, this solution is flooded onto the zonules by inserting a lacrimal needle carefully between the lens and iris. Zonulolysis occurs within three
to four minutes. The entire ampule is utilized. The solution is then washed away with a subiritic irrigation of saline. The luxated lens is then removed. In humans, a 1:5,000 concentration of alpha-chymotrypsin is sufficient for producing lens luxation in three minutes. The difference is due to the structural or chemical differences between the zonules of their respective species. Niemeyer and others have failed to produce zonulolysis when using "Kymar", an alpha-chymotrypsin product from Armour.

From reviewing these two methods and their results as produced by Magrane and Knight, it seems that the best results are obtained by performing an intracapsular extraction to correct a luxated lens or senile cataract and an extracapsular extraction in the case of juvenile or congenital cataracts.

To briefly mention some of the complications and how to avoid or correct them is now in order. First of all, avoiding the loss of vitreous is probably the most serious complication. If the vitreous does begin to prolapse from the corneoscleral incision, snip it off to prevent further losses. Do not try to replace it or the entire vitreous body may be lost. Another important point to remember is to prevent hemorrhage if possible and when it occurs, control it before proceeding. If the blood is left to coagulate in the anterior chamber, it tends to adhere to the iris and lens capsule. Iridectomies are not essential to success and may be the direct cause of failure because of their extreme vascularity. This is not true in man. The use of a conjunctival flap, pre-placed sutures to assure good wound closure, and a sufficient limbal incision (180°) to allow the lens to be removed are all important to the success of this operation. The reformation of the anterior chamber with an air bubble upon closure will help reform the eyeball and prevent iris adhesions. It is important to avoid leaving broken down lens tissue in the eye when performing an extracapsular extraction or an allergic reaction to this tissue will occur producing an iridocyclitis.

Whichever method is used, the extraocular procedures are identical. First of all, the animal is placed under general anesthesia following adequate pre-operative preparation which has already been described. Tilting the operating table slightly may aid in controlling hemorrhage as the blood will tend to settle in the posterior portions of the animal's body. Another helpful aid to remember in controlling hemorrhage is to have a 1:1,000 solution of epinephrine available to constrict the conjunctival vessels. After the field is surgically draped, a lateral canthotomy is performed for more adequate exposure. A lid speculum or retractor is then applied to the eyelids. Medial and lateral stay sutures are then placed in the sclera so an assistant can position the eye as the surgeon directs. A conjunctival flap is then dissected to the limbus. The limbus is then punctured with a keratome following the application of pre-placed sutures to assure good wound apposition upon closure. The limbal incision is then enlarged to form a 180° angle (3 o'clock to 9 o'clock) with corneal scissors. Then proceed to remove the lens by either the extracapsular or intracapsular method. The limbal incision is then closed with 6/0 silk including the conjunctiva so that the knot is not buried. The anterior chamber should be reformed with an air bubble for easier suturing and the prevention of iris adhesions. The conjunctival flap is then sutured back into place in the same manner. A simple interrupted or continuous pattern will suffice. It is important to obtain accurate apposition of the wound margins. Finally, the canthotomy wound is closed. The conjunctival sutures may be removed in ten days. The canthotomy sutures are removed in ten to fourteen days depending on the healing process.

In closing, I would like to mention that there have been some reports in the literature concerning therapeutic cures for cataracts. Ivy, et. al. used a protein-free extract of horse serum injected intramuscularly. He stated clearing of the opacity was noted in two to four months. However, the only type of cataract which
is known to be controlled by therapeutic means is via the use of insulin in diabetic cataracts. Surgical correction is the only recognized method to control other diseases of the canine lens, i.e. luxations and cataracts other than diabetic cataracts. As previously mentioned, the rationale of this type of surgery is justified providing the surgeon is adequately prepared, the cases are properly selected, proper pre-operative and post-operative care are practiced, and suitable instruments are utilized.

**BIBLIOGRAPHY**


15. Startup, F. G., "Enzymatic Zonulolysis as Aid to Cataract Surgery," *Veterinary Record*, March 26, 1960, 72 : 246

were such excellent saleswomen. Mrs. Joyce Crocker was introduced as our new faculty advisor along with Mrs. Janet Storts, who will continue in the advisory capacity for the coming year. Among the various service projects during the year, Easter baskets for the children at Riverside Hospital were assembled after the meeting’s adjournment. Members donated colored eggs, candy, and toys to fill the baskets that cheered the 36 convalescing youngsters.

THE DOG AS CO-THERAPIST

This business of a dog being man’s best friend has plenty of skeptics, but a happy note for dog fanciers was sounded in an article in Mental Hygiene (46: 59). In the opinion of the author of the article, the importance of the house pet to man is primarily psychologic. In many ways the relationship between man and dog, especially between child and dog, can be more salutary than one between two human beings.

The conclusion that a dog can be of much help in the treatment of certain child patients was reached when a mentally disturbed boy, long under treatment, improved remarkably when the help of a pet dog was enlisted. Such a child, feeling rejected by human beings, often finds that a dog accepts him fully, acts as a friend, servant, companion, admirer, confidant, toy, teammate, slave, defender, and even as a scapegoat. Furthermore, dogs do not argue, criticize, or talk back. While it’s apparent that much research remains to be done in this field, it is apparent that a dog is good medicine in selected cases.

(Reprinted from WHAT’S NEW, 228:34, Summer, 1962)

* * *

A Southern belle, wife of a sailor, brought her dog into a veterinary hospital one day for an examination. “Doctor,” she said, “what kind of dog do you all think he is?” “Well, it looks as though he has some Chow in him,” the veterinarian ventured. “Oh, no, Doctor,” she came back, “he hasn’t eaten anything for two days.”

HETEROTYPIC VACCINES

Heterotypic measles virus protects dogs adequately against distemper virus and can achieve efficacy even when a high level of distemper antibody is present. Because homologous distemper antibody interferes with vaccination by homotypic distemper vaccine, the use of heterotypic measles vaccine could protect dogs until distemper antibody disappears. In a like manner, human adenoviruses could confer protection against infectious canine hepatitis although a better strain than the ones tested thus far must be found. Use of heterotypic viruses in an immunization program for viral diseases of dogs appears essential.

(Reprinted from Gaines Dog Research Progress, Spring, 1963)

* * *

A good method of preventing a curious canine from destroying a splint placed on his body to aid the healing process is the application of a mixture of Tincture of Capsicum and ferrous sulfate (1:1) to the finished splint. After one or two licks, the patient usually accepts the splinting device.

SPENCER-WALKER PRESS, INC.
The annual recognition banquet sponsored by the O.S.U. Chapter of the A.V.M.A. was held on Saturday evening, May 25, at the King's Inn, Arlington Arms Motel. H. Wayman Parker, district sales representative for Merck and Company, Inc., spoke on the topic “Pink Pills for Pale People.” President Lauren Wolfe gave the welcoming address and introduced Lloyd Early who then served as master of ceremonies for the evening.

**PHI ZETA SOCIETY**

Memberships in the Delta Chapter of Phi Zeta, the veterinary medical honor society, were extended to those persons in the upper ten percent of the junior class and those in the upper twenty-five percent of the senior class who had not previously been extended the honor. The following persons received the membership: seniors—Ann Bowers, Patrick Breen, Alfred Flynn, David Fox, Jack Heine mann, Alvin Kron, John Labelle, Thomas Mouat, John Ortho efer, William Perry, Robert Rainier, Allan Sexton, Larry Sharp, Larry Stackhouse, and Dale Wal ther; juniors—Douglas Hulme, Paul Klinefelter, Clark Patton, Michael Rear don, Michael Reese, and John Toft. Also receiving membership were Drs. James Payne, Charles Watsabaugh, Daniel Mos ley, S. Dutta, Erwin Kohler, Charles Rossi, S. O. Sattar, Jack Stanton, and David Hill.

**BORDEN AWARD**

Milt Wyman was presented this award by the Borden Company Foundation, Inc. This annual $300 award is given to the member of the senior class who has attained the highest scholastic record in all his veterinary studies prior to his fourth year.

Milt is married and the father of two children. He has been active as a member of the AVMA, serving this year as program chairman. Milt has worked toward the promotion of the annual Pre-Vet Day, which is sponsored by the Student Chapter of the AVMA. In addition, he is a member of Phi Zeta. Upon graduation Milt plans to enter into research and teaching.

**WOMEN'S AUXILIARY AWARD**

The Women's Auxiliary Award of $50 was also presented to Milt Wyman. This award is given annually to the senior demonstrating special contributions which advance the standing of the veterinary college as well as the profession.

**OMEGA TAU SIGMA AWARD**

The Omega Tau Sigma Award to the outstanding member of the senior class showing the most promise in clinical medicine was given to Larry Stackhouse. Larry is married, a member of Phi Zeta, and an AVMA member. After graduation Larry will serve a tour of duty with the armed services; upon completion of his military obligation, he hopes to enter mixed practice. Larry was chosen as the
recipient by a committee of the clinical staff of the college for his personality, character, scholarship, leadership, and adeptness and interest in performing his clinical work.

**ALPHA PSI AWARD**

The Alpha Psi Award was presented to Michael Reese as the outstanding member of the junior class. Mike has shown by his scholarship, personality, character, and interest that he is capable of elevating the prestige of the veterinary profession. Mike was chosen for the award by a committee of the college faculty.

Mike is a member of the A.V.M.A. and Phi Zeta. He is also a member of Omega Tau Sigma.

**THE DEAN'S SPECULUM AWARD**

The Dean Krill Speculum Award was presented to Jack Hathaway by Dr. Walter Venzke, Chairman of the Department of Veterinary Anatomy. Jack has been a member of The Speculum staff for four years, serving as editor this past year. He is married and a member of Phi Zeta, Omega Tau Sigma, and the AVMA. In addition, he has been president of the Research Club and has been active in planning the Pre-Veterinary Medical Association. After graduation Jack plans to intern at the Angell Memorial Animal Hospital in Boston, Massachusetts.

**UPJOHN AWARDS**

James J. Weickert was presented the Upjohn Award for the most outstanding senior in small animal medicine. Jim is married and the father of one child. He is a member of Omega Tau Sigma and the AVMA, having served as treasurer of the AVMA. In addition, he has been a member of The Speculum staff for four years, serving in the capacity of associate editor during this past year. Upon graduation Jim plans to enter small animal practice in Cincinnati.

Receiving the Upjohn Award for the most outstanding senior in large animal medicine was Dale Walther. Dale has
been a member of the AVMA and has served as treasurer of his freshman class. In addition, he is a member of Phi Zeta.

**MERCK MANUALS**

*Merck Manuals* were presented to Lauren Wolfe, Vet. Med. IV, and Clark S. Patton, Vet. Med. III. These students were chosen for the award on the basis of their qualities for personality, scholarship, and leadership.

Lauren is a member of Omega Tau Sigma and has served as secretary of that fraternity. He was vice president of the sophomore class and is currently serving as president of the AVMA. In addition, he is a member of Phi Zeta. After graduation Lauren plans to enter graduate school in the field of pathology.

Clark is married and the father of one child. He is a member of Phi Zeta and the AVMA.

**ALPHA PSI ALUMNI AWARDS**

The Alpha Psi Alumni Awards were presented to Douglas Hulme, Vet. Med. III, and Keith Sugaski, Vet. Med. II, both outstanding individuals of their respective classes.

Doug is a member of Alpha Psi, Phi Zeta, and the AVMA. Keith is married, a member of the AVMA and Alpha Psi, and has served as president of his sophomore class.

**A.V.M.A. AWARDS**

The members of the senior class who have been in the AVMA in good standing for their college career are: Patrick Breen, Walter Christopher, Lloyd Early, Jack Hathaway, James Henschen, Marvin Hyde, Alvin Kron, Bob Rainier, Dale Walther, James Weickert, Lauren Wolfe, and Milton Wyman. The seniors received a membership diploma from president-elect Herbert Topp. The juniors who received membership pins were Darryl Biery, John Dearth, William DeHoff, Frank Goldsmith, Larry Heider, Douglas Hulme, Robert Linnabary, Russell Nyland, Larry Oldham, Michael Reardon, Michael Reese, Ann Scola, Jack Shanks, Gene Snyder, Herbert Topp, Richard Tschantz, James Vondruska, and Aubrey Wyatt.

**SPECULUM AWARDS**

The *Speculum* awards were presented to the staff members as follows:

**4-Year Awards**
- Jack E. Hathaway, James J. Weickert, and David H. Berliner

**3-Year Awards**
- Robert Rainier, Charles W. Glasser, and Joseph M. Judy

**2-Year Awards**
- Estel E. Snyder, Ann Schola Clark, and Kenneth A. Brush

**1-Year Awards**
- Fred F. Birk, Gerald B. Briggs, Thomas P. Deters, Dennis E. Lehman, Barbara S. Stein, Paul A. Stull, Charles E. Wallace, and Michael T. Reese

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**Hyperthermia**

*By John Shelton, Vet. Med. IV*

**Introduction**

“Hyperthermia is the elevation of body temperature due to excessive heat production or absorption, or to deficient heat loss when the causes of the abnormalities are purely physical.”

Regulation of the body temperature depends on the balance between heat production and heat elimination. Heat production is primarily dependent upon the oxidation of food stuffs, especially in the muscles and the large glands, such as the liver.

Heat loss occurs primarily by radiation (60%), evaporation (30%) and convection (10%). These mechanisms of heat dissipation are variable for different breeds of animals, as well as species. For example, dogs dissipate heat more by panting as opposed to heat loss in rabbits via the large surface area of the ears.

**Heat Regulating Center**

The balance between heat gain and loss is controlled by the heat regulating function of the hypothalamus. The afferent impulses are derived from the peripheral hot and cold receptors and the temperature of the blood that flows through the hypothalamus. The efferent impulses con-
control respiratory center activity, the caliber of cutaneous blood vessels, the activity of the sweat glands, and muscle tone. Heat storage occurs when there is a decrease in the rate and depth of respiration, a constriction of the blood vessels in the skin, the cessation of perspiration and an increase in muscular tone.  

Etiology of Hyperthermia

"Various physical properties can attribute to variations in the body temperature among which are age, sex, season, time of day, environmental temperature, exercise, eating, digestion, drinking water, and dehydration."  

The major causes of hyperthermia from a chemical origin are due to toxins from an invading pathogen. The release of pyrogens have a direct effect upon the hypothalamus. A fever often results from the decomposition products of proteins or from anaphylactic reactions of antibodies upon antigens of foreign proteins. Another major factor is local injury to the thermotoxic center in the hypothalamus. This can result directly from a blow, etc., or as a result of products released from other areas of the body being indirect damage.  

Some other factors contributing to hyperthermic conditions are as follows: 1) Fever is common when hemorrhage occurs due to protein digestion and tissue energy, 2) Malignant tumors due to an increase in metabolism, 3) It may be due to the pyrogenic properties of a variety of preparations introduced to body as therapeutics—due to the presence of living or dead micro-organisms, 4) Mechanical injury, 5) Hematopoetic disorders due to an increase in metabolism, 6) Diseases due to immune mechanisms or inflammatory diseases of uncertain etiology (Drug Fevers), 7) Certain acute metabolic disorders, i.e., porphyria, 8) Diminished cardiac output due to reduced heat dissipation, 9) Products of inflammatory exudates, such as polymorphonuclear leukocytes (pyrogens). This may affect the hypothalamus directly or cause tissue damage (capillary) affecting the afferent pathways of heat loss.  

Other minor causes can be attributed to: 1) edema-insulating effect, 2) skin lesions, 3) dehydration, 4) cerebral hemorrhage, 5) myocardial infarcts, 6) drug sensitivity and transfusions.  

Some drugs will induce hyperthermia. Examples of these are as follows: 1) caffeine due to an increase in muscular action, 2) hemoglobin solutions from their pyretic action, 3) I. V. concentrated glucose or salt due to the lack of water in the blood, 4) sulfonamides and 5) cathartics which draw water into the blood stream.  

Many products although not pyrogenic may be changed chemically by degradation or denaturalization and cause a pyrogenic reaction. Finally, a few non-protein chemicals are known to elevate the body temperature.  

Development and Maintenance of Fever

The development of a fever is due to vasoconstriction (temporary) during the chilling period and the fact that the body has a less efficient heat radiation caused by hemoconcentration. "The maintenance of a fever is based on Van Hoff's law stating that the speed of a chemical reaction increases as the ambient temperature rises (usually 2-4 times for each 10°C)".  

Conclusion

Fever is caused primarily by: 1) functional changes controlled by the hypothalamus which interfere with heat dissipation, 2) Pyrogenic micro-organisms or 3) Protein decomposition in the blood stream which interferes with the hypothalamus.  

REFERENCES
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2. Merck Veterinary Manual, 1324-1325  
3. Blood and Henderson, Veterinary Medicine, 16, 31-32  
4. Dukes, The Physiology of Domestic Animals, 636-654  
5. Guyton, Textbook of Medical Physiology, 849-853  
6. DuBors, Eugene, Fever and the Regulation of Body Temperature  
8. Harrison—Principals of Internal Medicine, 70-72  
10. Runnels, Monolux, Principals of Veterinary Pathology, 243-244  
11. Florey, General Pathology, 276-277
Dr. W. G. Venzke presented a paper entitled "Endocrinology in Small Animals" at a joint meeting of the Northwestern Ohio Veterinary Medical Association and the American Animal Hospital Association on March 27 at the Secor Hotel in Toledo.

Dr. Aaron Horowitz presented a paper entitled "Patterns of the Intestinal Arteries of the Goat" at the Section of Medical Sciences of the Ohio Academy of Science annual meeting held at the Miami Valley Hospital, Dayton, Ohio, on April 27, 1963.

Drs. W. G. Venzke and Edward Donovan attended a meeting of the Southeastern Ohio Academy of Veterinary Medicine held at Muskingum College, New Concord, on April 24, 1963.

Dr. Erwin Kohler (OSU, '55) received his M.Sc. degree in microbiology in March. The title of his thesis was "Studies of Colibacillosis in Germfree Piglets." He is continuing his studies for a Ph.D. degree.

Dr. E. H. Bohl visited the Plum Island Animal Disease Laboratory for several days in April where he gave a seminar on "Porcine Enteroviruses" and made observations on several exotic diseases, such as Foot and Mouth Disease, African Swine Fever, and Teschen Disease.

Dr. Adalbert Koestner, of the Department of Veterinary Pathology, and Dr. Richard W. Redding, of the Department of Veterinary Physiology and Pharmacology, gave a short course on "Neurological Examination of the Dog, Physiological and Pathological Interpretation" on February 14, 1963. This short course was offered under the Postgraduate Continuing Education Program of the College of Veterinary Medicine and was designed to stress the application and importance of physiology and pathology to the diagnosis of nervous diseases of the dog. The course consisted of lectures and demonstrations.

Drs. Capen, Griesemer, Farrell, and Koestner participated in intensive courses given by international authorities under the sponsorship of the International Academy of Pathology on April 29, 30, and May 1.

Dr. Robert Hamlin attended the Biomedical Engineering Symposium held in Los Angeles, April 25-May 1, 1963. He also participated in the Scientific Program of the AAHA meeting in Chicago, Illinois, held April 22-25. Dr. Hamlin gave a seminar of "The Treatment of Heart Disease in the Canine."

Dr. C. R. Smith attended the same AAHA meeting and spoke on "Elementary Principles of Fluid and Electrolyte Balance."

Drs. Powers, Crocker, and Hamlin attended the meeting of the Federation of American Societies for Experimental Biology held in Atlantic City, N.J., April 16-20.

Dr. Smith and Dr. Hamlin presented a symposium on March 15, 16, 17 in Tampa, Florida, sponsored by the Florida State Veterinary Medical Association.

Dr. R. Redding, in cooperation with Dr. A. Koestner, conducted an on campus college short course, "Canine Neurology."

Dr. Smith attended the AVMA Council on Research meeting, March 4, 5, in Chicago, Illinois.

Dr. J. H. Helwig has received the Certificate of Merit from the U.S. Power Squadron for outstanding service to this organization. He has also been appointed
chairman of the following two committees: 1) examination committee of the American Board of Veterinary Public Health and 2) OVMA committee that will recommend an executive secretary for that organization.

Dr. James Payne and Dr. Phillip Line-rode have been appointed instructors in the department.

Dr. D. O. Jones is participating as a course instructor in Epidemiology with ARS Animal Disease Eradication. He has also been elected a counselor of the American Board of Public Health.

Dr. Jones and Dr. Payne will participate in a meat hygiene symposium in Chicago, Illinois, in June.

Dr. Buller and Dr. Jones have participated with the College of Agriculture in presenting workshops on mastitis.

Dr. Payne, in cooperation with the Ohio Department of Health, will present a short course for veterinarians of local Boards of Health.

*Surgey*

Dr. Gabel presented an illustrated talk entitled "Abdominal Surgery in Dairy Cattle" at the annual meeting of the Northwestern Ohio Veterinary Medical Association on March 27.

Dr. Gabel was moderator of a panel discussion on "Adrenocortico-steroids and Related Hormones and Drugs", held at Sisson Hall on May 1. The program was sponsored by the Fifth District Veterinary Medical Association, of which Dr. Gabel is president. Members of the panel were N. H. Baker, M.D., E. B. McCrady, Ph.G., Dr. Griesemer, Dr. Powers, and Dr. Smith.

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**Pre-Veterinary Medical Day**

**BY BARBARA STEIN, Vet. Med. I**

Veterinary medicine as an academic challenge, as a profession, and as a science was the major theme of this year's annual Pre-Veterinary Medical Day. Over two hundred visitors attended the full day session held Saturday, May 4, 1963. Although the majority of this group was made up of high school and college level students, interested parents, teachers, members of the general public, and even graduate veterinarians were present.

After registration, the visitors were welcomed by Dr. W. G. Venzke, asst. dean, and Bob Rainier, senior. Dr. A. Gabel and Dr. D. O. Jones discussed the opportunities in the field of veterinary medicine and the future of the profession.

Veterinary students conducted tours through Sisson Hall, in which each of the departments had a representative exhibit or demonstration. An electro-phonogram of heart sounds, connected to a microphone system was of much interest, as were the exhibits of embryology and gross anatomy. The display of various laboratory animals employed in veterinary research was also considered noteworthy by the touring groups.

The afternoon session included a movie concerning the role of the practicing veterinarian. Dean Krill and Bob Linnabary, junior, presented the facts regarding admission requirements of the College of Veterinary Medicine. The tour of the clinics included presentations of various basic techniques in relation to radiology, ambulatory, pre-surgery preparation, small and large animal medicine and surgery. The College's newest facility, Goss Laboratory (Pathology), was also open to the visitors.

The success of the program must mainly be attributed to the hard work of co-chairmen Bob Rainier and Bob Linnabary, as well as the many other students cooperating as guides and demonstration assistants. It is felt that through the efforts extended in producing Pre-Vet. Day, the public may be made aware of the significance of veterinary medicine. But perhaps the final and most important objective of this day is to acquaint and
interest young minds in the growing aspects of our profession. Truly, then, the success of a project such as Pre-Vet Day can only be measured by an increase of qualified students seeking admission to the College of Veterinary Medicine in future years.

From The Editor

In this volume of The Speculum, we have tried to present a few insights into the various aspects of our profession. We have featured articles from the fields of research, public health, armed forces program and clinical medicine. We have also attempted to stimulate some thought-provoking discussion by articles concerning detail men and veterinary nurses.

We have also tried to keep you in closer touch with each other through the Alumni News and featured classes and to keep you informed of the events of our college.

I would like to take this opportunity to publicly thank the staff and all those who contributed to making this sixteenth volume of The Speculum possible.

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