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VOLUME XVII SPRING, 1964 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.

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I wish it were possible for me to give you the good news that plans for a new Clinic Building were proceeding on schedule, and that there was definite assurance that the final step in moving our college to the west bank of the Olentangy River would be a reality in the near future. No one is more anxious for this to happen than the members of our teaching staff and student body. The problem of commuting, the coordination of our teaching program and materials, the availability of our library to all the students and faculty, along with all other problems arising from a closely integrated program such as we of necessity must have in veterinary medicine make our present arrangement most undesirable. I am beginning to better understand why in most schools the veterinary colleges were transferred into new locations as an entire unit instead of piece meal such as we are doing here at Ohio State. Unfortunately, ours was not a matter of choice. It was either,— or, with rather definite promises that it would only be a matter of a few years until we could again function as a single unit in our new location. As of right now I would hesitate to make a prediction as to how far in the future the realization of this dream may be.

To bring all of you up to date, the State Legislature in its special session following passage of the Bond issue, did allocate $200,000 for the planning of the Veterinary Clinic facility. Had this been made available by the newly created Board of Regents, the detailed plans would now be well under way and would be completed and ready to start building when funds become available in 1965. Unfortunately and for reasons I have not been able to ascertain, the Board of Regents have not seen fit to allocate this money and consequently the status of building a new clinic is at a standstill.

Equally unfortunate is the fact that in the initial allocation of funds, money was provided for buildings which were to be built on the site where now stands the two main Veterinary Clinic facilities. This has led to rumors (not entirely without foundation) that the entire Veterinary Clinic and facilities were to be moved into temporary quarters, which have had a serious demoralizing effect on both the student body and faculty. To think that such a thing should even be considered in view of the complexity of operating an animal teaching hospital, with the built-in safeguards for the protection of patients, and providing all the ancillary services for proper patient care, not to mention the cost of such a temporary facility, seems almost incredible. Add to this the most serious potential, that of loss of college accreditation and its resultant effect on the students now enrolled who would not qualify to practice their profession, even in our own
state except by special legislation, is an obligation too serious to ignore. It is likewise most doubtful if many of our clinical faculty would continue to give their unselfish service to the college and the future members of the profession if they were to be subjected to the ignominy of having their profession downgraded in this way.

Fortunately we have a university president and administrative staff who appreciate our needs and are aware of the serious consequences of having our clinical program interrupted by moving into temporary quarters. President Fawcett has assured a committee representing our profession including Dr. Tharp and myself that no move of the clinical facilities would be made until such time as the building of the Clinic was definitely assured and under way so that the use of such temporary facilities would not be for a period of more than a year. I should also state that it was largely through President Fawcett's special efforts that the $200,000 for planning the clinic was provided by the legislature.

Of course at the time of this writing (April 23) all funds provided by the bond issue are tied up in litigation and all programs are at a standstill.

What and when action may be taken to provide funds to start planning our veterinary facility depends on the outcome of present litigation and the release of the available funds by those charged with their allocation.

Of this I am fully confident: our profession and the people of the great state of Ohio are not going to sit idly by and see the College of Veterinary Medicine of The Ohio State University, which is the third oldest veterinary college in the United States and the oldest professional college on our campus, and which has contributed so much to a healthy livestock industry as a part of a sound agricultural program in Ohio, be relegated to a second class status.

The College of Veterinary Medicine is unique, being one of only 18 in the entire United States. The college has graduated more veterinarians than any other in the United States. The demand for admission is increasing rapidly and this year about three applicants were denied admission for each fortunate applicant admitted. Although the enrollment in our college has been consistently higher than that of any of the other 17 veterinary colleges in the United States, we are looking forward to the time when our new clinical buildings, which will provide more clinical material and better teaching facilities, will make it possible to greatly increase our admissions in order to meet the rapidly increasing demands for well trained veterinarians in this country. It seems a shame that our college must be delayed in contributing its share.

I trust you will not get the impression that I have become embittered and have lost hope for replacing our outmoded, 55 year-old clinical facility.

On the contrary, I am merely trying to present to you the facts as of today. With the continued support of our university administration and the members of our profession and a little time for those responsible for administering the funds to truly evaluate our needs, I am sure that the planning for the completion of our building program will soon be under way. We must not lose faith.

I will be looking forward to seeing many of you at our alumni gathering during the A.V.M.A. meeting in Chicago. How about making this the largest meeting we have ever had! Perhaps I shall have good news to report at that time. Until then, best wishes to all of you.

Sincerely,

Walter R. Krill

Recent thoracic radiographs of Colo and the nine other apes in the Columbus Zoo. (See SPECULUM Spring, 1963) indicate that their tuberculosis has not progressed any further in the past year. The disease appears to be arrested in all of the apes. The apes will remain on treatment for at least another six months.
Dr. Russell E. Rebrassier

BY GENE SNYDER, Vet. Med. IV

It is with great sorrow that we report the passing of one of the most prominent leaders of our profession, Dr. Russell E. Rebrassier, on May 10, 1964. He was 73. Dr. Rebrassier was not only a diligent educator but also an excellent administrator.

Dr. Rebrassier graduated from the Ohio State University College of Veterinary Medicine in 1914 and joined that school's faculty two years later where he remained until his retirement in 1960. He was professor and chairman of the Department of Veterinary Parasitology for many years and served for 13 years as secretary of the college and also served as assistant dean.

The important positions Dr. Rebrassier held within the profession are nearly endless. He served tirelessly as executive secretary of the Ohio State Veterinary Medical Association until recently. He also had served as president of that organization, and he was president of the A.V.M.A. for the year 1959. He was a member of the accreditation committee for veterinary medicine colleges.

Dr. Rebrassier was serving as president of the Columbus Board of Health when he died. He was in his fourth four-year term for that organization. He was a member of Overbrook Presbyterian Church, a veteran of World War I, past national president and present national treasurer of Alpha Psi, member of Sigma Psi, member of Omega Tau Sigma, and a member of the State Board of Examiners of Veterinary Medicine.

In 1962 the college awarded Dr. Rebrassier its Distinguished Alumnus Award for his teaching and research in the field of veterinary parasitology, for his leadership in elevating the standards of the profession, and for his service to his community. Surely this man was deserving of such an award and he will always remain in our minds as one of the great men of the profession.

A Beckman Model DU Spectrophotometer is being used by Dr. Loeb in clinical pathology to study and evaluate enzymes. Any substance which will go into solution can be measured on the Beckman Lab Potentiometric Recorder. The spectrophotometer quantitatively measures the substance in solution by transmittance and subsequent absorption of wavelengths of light in the ultra violet, visible, and near-infrared spectrum.

The newest major addition to the research tools in the clinic is the Packard Model 3003 Tri-Carb Scintillation Spectrometer. This machine does essentially the same task as the spectrophotometer, but it works on a different principle. The Spectrophotometer measures substances by emission of a specific wave length of light. The scintillation spectrometer measures substances in solution by their dis-

WHAT'S NEW IN THE CLINIC

BY BRUCE BRIGGS, Vet. Med. III

The ivy covered walls of the O.S.U. Veterinary Clinic have changed very little since the Neil Avenue structure was opened 55 years ago. Inside the clinic however, there have been many changes which have been made to keep pace with the expanding art and science of veterinary medicine. New equipment has been added to increase the educational and research facilities as well as to expand the service to the clientel of the clinic.

Eight new boxstalls and a large pen area have been installed in the east wing of the cattle barn. This much needed area has helped, to an extent, to provide additional room for large animals which are being treated at the clinic in record numbers.

SPRING, 1964 5
integration which gives off Beta emitters which activate photo sensitive cells in the scintillator to produce light. This energy in the visible spectrum is then counted by the machine. The immediate use for this machine will be in determining the distribution and concentration of tagged substances as they travel throughout the animal's body.

The physiology department is using a new Offner Type T electroencephalograph to study both normal and abnormal impulses from the brain. This machine is being used on both large and small animals presented to the clinic. The new unit has two main advantages over the fixed unit used previously.

The first advantage is that this unit is transistorized which makes it portable, increasing the flexibility of its use. The second advantage is that no special shielding is required as with the model used previously. This makes it possible to use the machine anywhere. This is very important in examining the nervous system of a confined or debilitated animal which cannot be moved. This machine is being operated by Barry Prynn not only for examining clinic patients, but also in his research of encephalidities of the canine sponsored by a Morris Animal Foundation grant.

**HISTORY IN THE MAKING**

By Steven Stevenson, *Vet. Med. II*

On April 24, 1964, history was being made in the Department of Preventive Medicine at The Ohio State University College of Veterinary Medicine. On that date, senior students in the Preventive Medicine section listened to a lecture given by Dr. E. S. Tierkel, Advisor of Veterinary Affairs to the Department of State. Dr. Tierkel is the past Advisor to the World Health Organization on rabies studies. He graduated from Pennsylvania with a B.A. in 1938, received his V.M.D. in 1942 and Master of Public Health from Columbia in 1946 and has been the Director of Rabies Control Activities since 1949 of the Public Health Service. A lecture by Dr. Tierkel on rabies in the United States and its existence in wild animals would have been in itself unique. However, what made this lecture special was the fact that Dr. Tierkel was in his office in Washington, D. C. lecturing to the seniors who were in Sisson Hall on the Ohio State University campus.

This lecture was made possible through the use of Tele-Lecture equipment supplied by the Western Electric Co. This system utilizes the telephone at one end and a microphone-loudspeaker system at the other.

To operate this new teaching device the professor in charge places a long distance phone call to the guest lecturer via a telephone incorporated in this equipment. After the call is placed, the equipment is converted to a microphone-loudspeaker system. The guest lecturer needs no special equipment, just a telephone. With the loudspeaker-microphone system, the lecture is broadcast to the entire group present and questions may be directed back to the lecturer via microphone.

On its debut, the tele-lecture equipment functioned without a flaw. Dr. Tierkel's voice was loud and clear as if he were present giving the lecture instead of being miles away in Washington.

With this lecture system, prominent men of various fields can make a presentation to a group while they are sitting in their office anywhere in the United States. It becomes rapidly evident that this will save both time and money in securing experts to speak to our groups. Through the efforts of Dr. John H. Helwig and Dr. David O. Jones, the procurement and initial demonstration of this system clearly illustrated its value and potential as a teaching aid.

To my knowledge, this is the first time that this system has been used as a teaching aid in any college classroom. I am sure that with all the capable men available as guest lecturers, the Tele-Lecture equipment will have little rest in the College of Veterinary Medicine.
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A.V.M.A. AUXILIARY

BY JOYCE DILL

All Jr. A.V.M.A. auxiliary members must surely agree that this spring quarter has been the busiest one yet!

The program for our March meeting was an inspiring slide preview of the New York World's Fair, presented by a representative of Delta Airlines. Election of officers was held after which the following new officers and one new advisor were installed: Mrs. W. Keith Wearly, advisor; Mrs. Karen Mays, president; Mrs. Millie Hague, vice-president; Mrs. Joyce Dill, secretary; Mrs. Beverly Wallenhurst, treasurer. On the next evening, a representative from the Ohio Bell Telephone Co. presented the last in our series of educational programs.

At Easter time our organization donated boxes of cookies to the children of Franklin Village. This proved so successful that we have now decided to extend our service project and adopt a cabin of 14 children. We will help each child celebrate his birthday with a cake and cards.

Each year the group looks forward to having our guest panel of veterinary wives. This year it was held at the April meeting. Each of the four panel members represented a different field of veterinary medicine. Questions were hurled at and very capably answered by Mrs. Marion W. Scothorn, representing the military service; Mrs. Aaron Horowitz, representing education and research; Mrs. Robert Ewing, representing small animal practitioners; and Mrs. James Henschen, representing large animal practitioners.

We were pleased to present our new auxiliary award for the first time at the A.V.M.A. banquet on May 9th. Also, a gift of an engraved pen was presented to Dr. Robert G. Whiteus in appreciation of his efforts in helping organize and conduct our educational programs.

The annual spring tea honoring senior wives was held May 12, 1964, at the home of Dean and Mrs. Krill. Each senior wife who was a member of our organization this year received a corsage and a charm engraved with Jr. A.V.M.A. Auxiliary on one side and containing a veterinary caduceus on the other side. Also, the state president of the A.V.M.A. auxiliary presented each senior wife with a six-months honorary membership in their organization.

The last activity in our group, until next fall, will be when the president, Mrs. Karen Mays, will represent us as a delegate at the National A.V.M.A. convention.

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FOR SALE

For Sale: 8 room house and barn on about ¾ acre. The building includes facilities for boarding dogs and cats and an office plus equipment. Selling because of poor health. The price is reasonable. Robert Kenwell, Newark Rd., Mt. Vernon, Ohio.
Laboratory Animal Medicine
At Ohio State

BY PAUL A. STULL, Vet. Med. II

With the advent of the Scientific Era, scientific research has increased exponentially and is continuing to do so with an ever increasing size of the exponents. The search for knowledge has been extended in almost every conceivable direction. Extensive work is being done in nearly all fields and this is particularly true of the biological and medical sciences.

One of the essential research tools for biological and medical research is the laboratory animal. The need for high quality, healthy animals is clearly indicated if the animals are to be useful as research tools.

A program in Laboratory Animal Medicine was established at Ohio State in the Fall quarter of 1962 and is designed to adequately train veterinarians in three basic areas of Laboratory Animal Medicine. They are as follows: diseases of laboratory animals, the administrations of laboratory animal facilities, and research methods and instrumentation associated with biological research using laboratory animals as a research tool.

A student interested in studying Laboratory Animal Medicine at Ohio State must, before he can enroll in the program, be a graduate veterinarian and be enrolled in graduate school. It takes about seven quarters to complete the requirements for a Master’s degree under the present curriculum. The curriculum includes courses with special emphasis in laboratory animals in the following fields: genetics, statistics, microbiology, endocrinology, physiology, parasitology, pathology, comparative anatomy, gnotobiotics, and animal husbandry. In addition, research for a thesis or dissertation is required.

The students are required to spend a certain amount of time (usually 4-10 hours per week for one or two quarters) at the Health Center Research Laboratories, the OSU Animal Facilities, and observing and participating in some of the activities of the Research Foundation. Thus, the student is provided with an opportunity to observe and participate in actual activities associated with research laboratories utilizing laboratory animals. This includes experience in administration, preparation of animals for research studies, and care and housing of laboratory animals.

Ohio State is the first university and at present only university to have established a course leading to a Master’s degree in Laboratory Animal Medicine associated with the College of Veterinary Medicine. This fall, the University of California College of Veterinary Medicine plans to offer a similar course. There are, however, four medical schools that provide graduate training in Laboratory Animal Medicine. These are the medical schools of the University of Michigan, Bowman-Gray, Tulane, and New York University.

There are at present four students enrolled in this course at Ohio State. Three of the students are associated with the U.S. Armed Forces. Approximately 250 veterinarians in the United States are involved in Laboratory Animal Medicine and it is estimated that within ten years 1000 will be needed.

The veterinarian adequately trained in Laboratory Animal Medicine possesses a knowledge of this field to an extent and in a prospective not generally available to most researchers even though the researchers may be quite familiar with certain types of laboratory animals.

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Cat Breeds Seen In Today's Practice

By Barbara Stein, Vet. Med. II

Today’s small animal practitioner is almost assuredly beginning to feel the impact of the boom in cat fanciers among his clientele and patients. Within the last five years, the popularity of the ancient *Felis domestica* has increased to an extent whereby one out of every four American families may lay claim to, or be claimed by, a cat. This total of 22 million felines, however does not even include the strays and farm cats, which account for several million more. Due to this upsurge in the cat population, the veterinarian not only finds himself practicing more feline medicine, but he is presented with the difficulty involved in trying to determine breeds. The epitome of an indignant owner may be seen when a favored Burmese is called a “brown alley cat” by the veterinarian! Therefore, an attempt to distinguish the various feline breeds, based on markings, size, color, and personality comparisons is presented.

Of the main division between Short Hairs and Long Hairs, the former is by far the larger group. The Short Hairs are classified as either Domestic or Foreign. The traditional “Alley Cat” (which only is such due to man’s indifference) is rightfully considered to be a Domestic Short Hair, and from here, further categorization is limited. Since the days of the Sacred Cat of Egypt, this popular animal has interbred to such an extent that there are no true purebreds among them. Cats of virtually any coat color, shading, marking, spotting, striping, or pointing, with any eye color combinations are acceptable for registration with at least one of the six main cat breed organizations.

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Among the more unusual Domestic Short Hairs are the Odd-eyed whites. This cat has a heavy, even-textured, pure white coat, with one eye of light blue and the other an orange or rust color.

The Tabby, whether it be silver, brown, or red, is striped, with horizontal bars (bracelets) running up the legs, which may slant slightly to meet the back markings. A distinct stripe down the dorsal midline, with less obvious markings lateral to it, plus a barred tail are required of the true Tabby. The face must also exhibit whirls rather than solid patches of color. Often considered a Tabby, but actually a result of Tabby crossing is the cat with horizontal bars on the legs and transverse markings across the body. This is the common Tabby rather than the show Tabby.

In contrast to the markings of a Tabby, the Tortoiseshell cat must not be brindled, but must possess patches of solid color of black, red, and cream. There should be no predominance of any color, however. The “blaze” nose is half black, half orange, and the eyes are copper or deep orange. Because Tortoiseshell males are quite rare, and usually sterile, the females must be outbred, and of the resulting progeny, only one, at the most, is a Tortie.

Erroneously known as a Tortoiseshell is the Calico cat which combines white with the black, red, and cream of the true Tortie. Eyes of this breed are also orange or copper.

Without a doubt, the greatest surge among the cat-owning public (is a cat ever owned?) has been for the Foreign Short Hairs, especially the Siamese. No description of a Siamese is necessary once one has heard their characteristic talking; their vocalizing leaves no doubt as to their heritage! “Siamese” no longer infers the basic Seal-point cat, however, as Blue-point, Chocolate-point, Lilac-point, Red-point, and Torti-point animals are now established. It is the differentiation between these various types rather than distinguishing the breed that will perplex the veterinarian. The standard Seal-point cat has a cream colored coat with “points” (mask, ears, legs, and tail) of seal brown. The eyes are a deep, rich sky-blue. The points should be well-defined with little
blending together of cream and seal brown. The area over the back and upper hind legs may tend to darken but should still provide a good contrast when compared to the points. Warm temperatures and old age favor the darkening of the body color. Foot pads and nose are the same seal color as the points.

The Blue-point exhibits a blue-white coat, very different from that of the cream color of the Seal-point. Eye color is still blue, but slightly lighter than the Seal-point. The points are a similar shade of blue (which realistically may appear to be closer to gray) but darker and provide a definite contrast to the coat. The nose and foot pads are slate colored.

The Lilac-point has a glacial white body, with frosty gray points, mauve foot pads and nose, and blue eyes similar to the Blue-point. Basically there is less distinction between coat and point color in this variety.

Chocolate-point Siamese have become the second most popular Siamese, and they are considered more and more to be the most striking in appearance due to the very distinct coloration between body and points. The body is a light ivory with no darkening on it at any time, the eyes a typical blue, the points a chocolate brown (slightly lighter than the Seal-point), and foot pads and nose are cinnamon pink.

The three newest varieties, Frost-point, Red-point, and Torti-point, are not well established by the breed organizations as to standards. However, the Frost-point is very similar to the Lilac-point, but slightly lighter so as to provide virtually no contrast between body and points. The Red-point has a light cream body with a very definite red cast to its points. It is the closest color to true red that this author has seen in any dog or cat coloration. The Torti-point Siamese also has a light cream body, but in the area of the points rather than presenting a solid appearance, the points have the speckled or patchy look of cream mixed with a chocolate brown. They somewhat resemble Chocolate-points that have had flour dusted over their points.

All variations of Siamese possess the same general body conformation. They are of medium size and may have higher hind legs than front legs, which gives them an appearance of "walking down hill." The body is lithe, the head wedge-shaped, ears large and open, and wide at the base. The eyes are characteristically set at an oriental slant and the tail is long and tapering. Due to changes within the show standards, the Siamese with the kink tail and cross eyes is no longer favored, and consequently, it is very seldom seen. Kittens are born with an all white body and points; complete point coloration may require over a year.

In addition to their unmistakable Siamese voice, this breed is almost set apart by its personality. Owners have labeled them monkey-like or dog-like but the fact is that no two Siamese are even similar in personality. They are easily trained to perform "dog" tricks, and are by far the most entertaining cat as they are natural exhibitionists.

One of the few breeds to be a result of American development is the Burmese. This compact, muscular cat has a coat which most women can quickly compare to that of sable. A Burm's coat is the shortest of all breeds, and has a bright sheen with a satiny texture. The eyes are a deep, bright gold, and the mouth often has an upturned appearance resembling a smile. The area between the eyes and ears is often scarce of hair. Stripes or bars may be present on the legs. The head is more round and shorter than that of the Siamese, and the eyes are definitely round rather than slanted. The ears are large and pointed forward, and the tail is long and tapering. As a kitten the Burmese may present an almost pathetically funny appearance. Their rough, brown kitten coat, plus long tail and large ears give them a monkey-like quality.

In personality, the Burmese resembles the Siamese in its unique personality, but the Burmese is, beyond doubt, the most openly affectionate cat. Their vocalizing is less demanding than the Siamese, and their antics a little less frantic, but their demand for attention becomes quite obvious.
In direct contrast to the oratory of the Siamese is the seldom audible Abyssinian. These cats, which resemble wild rabbits as kittens, are noted for their “tiptoe” posture. Their coat gives a “ticked” appearance due to 2 or 3 bands of black, white, and/or brown on each hair. A necklace of color around the neck usually is present but should show a break at the throat. The body is somewhere between the Siamese and Longhair in conformation, and the coat should be thick but soft. Eyes are gold, green, or hazel. The Abby personality shows a tendency to be feral and nervous, similar to that of the larger cats seen pacing their zoo cages.

A Manx cat is one seldom confused with any other due to the obvious absence of any tail. A rabbit-like appearance is due to the very long hind legs, which also account for the hopping and leaping so common in this breed. Any coat and eye color is recognized in a Manx, but the coat must be thick and double (close lying short hairs and outer longer hairs, similar to the German Shepherd.) The head is large and round. Manx will occasionally produce “Stumpies” with a tail of a few coccygeal vertebrae, and may even produce completely tailed litters. The Manx should show almost an identity at the site where a tail would normally begin. The athletic prowess of this cat lends question to the importance of the cat’s tail for balance.

Often mistaken for a common gray Domestic Short Hair is the regal Russian Blue. Similar to the blues seen in other animal species, the realist might be forced to consider the Russian Blue to have, at best, a deep slate-blue coat color. The texture of the coat rather than its color is the distinguishing feature; however, as this cat’s coat is very similar to that of sealskin—short, fine, and quite thick. Wide set, round, green eyes (kittens have yellow eyes), large ears, and a fairly long nose and neck characterize the head of the Russian Blue.

Among the newer Short Haired breeds are the Havana Brown (similar to the Burmese but with green eyes) and the Rex. The latter is one of the most unusual cats due to the presence of marcel waves running through the body and tail, and Persian lamb-like curly hair on the stomach. The ears are large and devoid of hair. A few long, white, curly eyebrows and a Roman nose profile complete the face of the Rex.

“Longhairs” is a term not only devoted to classical music admirers, but in cat circles, is considered almost synonymous with the Persian breed. Although the longhaired Angora once existed in this country, they are no longer in evidence. The Persian is classified into twenty coat color groups for show purposes; the texture of the coat will vary with the color. Persians have a large, round head with wide-set, round eyes and small ears which tilt forward. The nose is very short and snubbed. A short, compact body with a very full, bushy tail without any curve to it is required of the breed standard. The haughty look of the Persian is due mainly to the ruff around the neck, and it may be so large and full as to give the cat the appearance of virtually no neck at all. In addition to the many coat and eye color combinations (i.e., Tabby, Smoke, Chinchilla, Red, Silver), is the “Peke-faced” Persian which resembles the Red and Red-Tabby Long Hairs in coat color. The head, however, is similar to that of the Pekinese dog in that the nose is very short, if not actually depressed or indented between the eyes, and the muzzle has a definite wrinkled appearance.

The only other cat to offer competition in the Longhair classes is the Himalayan. This cat has the Persian body conformation and coat length, but possesses the markings and points of a Siamese.

It is at best difficult to distinguish several of the cat breeds by description alone. However, the recognition of the various breeds will be called to mind once these animals are seen, as they are distinctive enough to be remembered. Once the individual recognizes this animal to be a distinct entity within itself not to be compared to any other species, it is all the more probable that the numbers of aelurophils will continue to increase.
MOSELEY RECEIVES
LEGION OF MERIT

Major John D. Mosely, U.S.A.F., on April 15, 1964 received the Air Force’s second highest peacetime award, the Legion of Merit. Maj. Mosely received his D.V.M. degree from Auburn in 1948 and is presently doing graduate work in Ohio State’s Department of Veterinary Physiology. He is most well known for being in charge of the project which sent the two chimps, Ham and Enos, into space and back in 1961.

The citation given Mosely commends his “exceptionally meritorious conduct . . . while serving as special projects officer of the 6571 Aeromedical Research Laboratory,” at Holloman A.F.B., New Mexico, from November, 1959, through December, 1961.

Maj. Mosely hopes to return to space medicine when he has completed his graduate work. He was in charge of training the chimps for their flights and his project’s purpose was to evaluate the Mercury capsule and determine if space flight was practical for humans. He kept observation on Ham and Enos until September 1962, and reports that they never showed any ill effects from their space travels. Enos died of an intestinal disorder in 1963, but Ham, at the age of six, is presently going ape at the National Zoological Gardens in Washington, D. C.

STUDENT AVMA NEWS
BY GEORGE BISHOP, Vet. Med. III

Pre-Veterinary Day

Pre-Veterinary Day was again sponsored by the student chapter. It was held Saturday, April 18, and was attended by more than 400 people interested in the profession, most of whom were high school and college students. The day began with introductory remarks on several of the fields within the profession by Drs. Helwig, Murdick, Donovan, and Donham. Tours of the facilities of the college followed which included demonstrations and short discussions of each department within the college. In the afternoon Dean Krill spoke on the requirements for admission into the college. A movie produced by Dr. Milton Wyman was then shown which described the veterinary student’s four years of professional training at Ohio State. The day concluded with an open house of Sisson Hall, Goss Laboratories, and the clinic. Co-chairmen of the event Bob Linnabary and Dick Marshall are to be congratulated for their good work. The various veterinarians around the state who directed interested youths to this event are also thanked.

Other Events

The perennial small animal panel was again held this year and as usual was an enlightening and (thanks to Dr. Docton of Xenia, Ohio) entertaining evening. Other members of the panel were Drs. Wenger and Monfort of Columbus with Dr. Rudy doing the moderating.

The AVMA banquet was held May 9—write-up is in this SPECULUM.

The final meeting of the year was our spring picnic at the Park of Roses on May 27.
A Proposed Substitute For The Microscopic Examination Of Swine Carcasses For Trichinella Spiralis

BY CLARK S. PATTON, Vet. Med. IV

(Editor's note: this article was written as partial credit in the Meat Hygiene Section of the seniors' course in Veterinary Preventive Medicine under the direction of Dr. James Payne.)

Trichinella spiralis is a nematode parasite of mammals whose primary importance concerns its transmission from swine to man. Man usually becomes infected by eating raw or improperly cooked pork containing the parasite. The infective form of the parasite, located in the skeletal musculature, is released in the intestinal tract after ingestion and grows to an adult. Each fertilized female, imbedded within the intestinal mucosa, is capable of releasing 500 to 1500 larvae into the blood circulation of the host. The trichina larvae invade the skeletal muscle fibers and develop into infective larvae. Although the pig shows no clinical signs of an infection, man is not so fortunate. Although man may show no signs of an infection, depending upon the number of muscle larvae ingested, he may die from an infection. Many times the disease may be misdiagnosed because it mimics many other diseases. Because this parasite cannot be seen with the naked eye in the pork muscle, the American public has been educated to treat all pork as though it were infected as no attempts are made to detect the parasite in swine slaughtered in this country.

Certain groups of peoples, notably the Italians and Germans, customarily eat raw pork delicacies. In Germany, France, Italy, Austria, Belgium, Denmark, Finland, Greece, Ireland, Morocco, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Tunisia, Turkey, and Yugoslavia the inspection of swine carcasses includes the microscopic examination of certain skeletal muscle tissue for the trichina larvae. This method of inspection is time consuming, expensive, and does not necessarily guarantee that the carcass is free of larvae. Because the larvae are not uniformly distributed in the musculature, lightly and moderately infected swine may pass undetected. Furthermore, the direct microscopic examination is most likely to detect the calcified cysts surrounding the muscle larvae; those which are not calcified are difficult to detect because of their transparency. Calcification of the cyst occurs within seven to eighteen months after infection, but most swine are slaughtered at six months of age. The larvae which have not become coiled (less than seventeen days post infection) are even more difficult to recognize. Of 6,329 cases of human trichinosis in Germany between 1881 and 1898, over 32% were contracted from swine carcasses determined to be free of the parasite by direct microscopic examination. However, it cannot be denied that this method of examination has excluded many infected carcasses from the usual channels of trade. Human outbreaks occur only sporadically in Germany today. Nevertheless, pork determined to be free of muscle larvae may contain sufficient numbers to produce trichinosis in man.

Because the United States does not inspect pork carcasses for T. spiralis, such countries as Germany, Netherlands, and Venezuela require that all pork be properly frozen to destroy the larvae before imported pork from the United States can be sold for domestic use. The treatment of pork by this method is costly. In a recent article in The Wall Street Journal (November 18, 1963) it was pointed out that France will not accept any American pork unless it is inspected microscopically.
for the trichina larvae. It was estimated that 66,000 hog carcasses valued at $3.6 million could be exported in the next six months if they were examined microscopically for the larvae. France requires that fourteen samples of meat be taken from each carcass and examined microscopically. The cost to the American meat packer would be too great. Each set of samples would require ten minutes to examine which would limit the packer to the processing of ten carcasses per hour whereas many packing plants process 300 or more carcasses per hour. Furthermore, the “trichinoscope” used for the examination costs about $1,000. A simple, rapid, inexpensive, and sensitive test is necessary if meat packers in this country are going to inspect swine carcasses for trichinosis in order to comply with inspection regulations required by certain foreign countries. Of course, the big “IF” in the test is its acceptance in place of the direct microscopic examination. The name of the proposed test is the S-K test.

The S-K (Suessenguth-Kline) test involves the examination of serum for the presence of antibodies against *T. spiralis*. It is a microscopic slide agglutination test using an antigen emulsion consisting of an alkaline aqueous extract of lyophilized washed muscle larvae adherent to cholesterol crystals which are made uniform in size by being precipitated from an alcoholic solution. (The antigen is commercially available from LaMotte Chemical Products Company, Chestertown, Maryland.) A blood sample is collected and spun down to collect the serum. After an inactivation period of thirty minutes at 56°C, .05cc of serum and one drop of the antigen emulsion are placed on a ringed microscopic slide and rotated at 120 rpm for four minutes. The results are then determined using a microscope; any degree of clumping or agglutination of the cholesterol crystals is considered positive. The test is simple and rapid permitting many samples to be run at one time. Furthermore, up to 400 carcasses per hour could be examined by this method. It appears to the author that the greatest mechanical difficulty would be the absolute necessity of identifying the serum sample with the swine carcass. Perhaps blood could be taken from the heart after the hog has been eviscerated thus alleviating the necessity of an antemortem identification of the carcass.

Practically speaking, in order for the test to stand on its own merits it must be equal to or more sensitive than the direct microscopic examination. Ideally, all trichinous carcasses should be detected by the seventeenth day after the ingestion of the infectious muscle larvae for it is at this time that the newly developed muscle larvae become infectious. In the majority of cases the S-K antibody does not appear until after seventeen days. In experiments performed by Suessenguth et al it was found that the minimum time of appearance of the antibody was eight to ten days post infection in swine given massive doses of larvae (337,500 and 27,000 larvae). In swine given less than 5,000 larvae but more than 1,000 larvae, the antibody did not appear until the tenth to twenty-fifth day post infection.

In a subsequent experiment thirty-one swine weighing forty pounds a piece were infected with small doses of 500 to 100 larvae and raised to 225 pounds. Three swine served as contact controls. Of nineteen swine given 500 larvae, the appearance of the first S-K antibody was from thirty-one to ninety-three days with a mean appearance of 40.4 days. In those swine fed 100 larvae the first appearance was from twenty-nine to ninety-eight days with a mean appearance of 56.1 days. One contact control pig never showed the presence of antibody, yet 23.2 larvae per gram of diaphragm were found at the time of slaughter. None were found in the tongue or ham.

In another experiment, when 1000 larvae were fed to twenty-two swine the range in appearance of the antibody was eighteen to forty days with a mean of 32.2 days. However, one pig given 1000 larvae showed sporadic positive reactions. At slaughter the tongue, diaphragm, and ham yielded 44.3, 58, and 7.8 larvae per gram respectively. One pig that was reactive on the thirty-ninth day post infec-
tion was not reactive on the fifty-fifth day and remained so. The tongue, diaphragm, and ham of this pig yielded 265.5, 174.7, and 27.9 larvae per gram respectively. One pig given 1000 larvae showed no antibody response, but no larvae could be found at slaughter. Of nineteen swine that received 500 larvae each, all were positive at slaughter except two, one of which became non-reactive at sixty-six days post infection and the other at ninety-eight days. In the group receiving 500 larvae, the mean appearance of the antibody was 37.7 days with a range of twenty-seven to fifty-three days. In twelve pigs given 100 larvae, the range in appearance was thirty-four to sixty-seven days with a mean of fifty days.

As can be seen, only four of fifty-two successfully infected swine in this experiment did not react positive to the S-K test at the time of slaughter. It is evident, however, that the fewer the number of larvae ingested, the longer the time required for the appearance of the S-K antibody. Only in very heavily infected animals does the antibody usually appear prior to seventeen days post infection. Whether this time lag in the appearance of antibody is of practical significance is not known by the writer. One must also keep in mind those few individuals which show no antibody at slaughter yet which have infectious trichina larvae. In a test conducted on 808 swine slaughtered in Ohio, serum and diaphragm samples were tested for the presence of antibody and larvae respectively. Older swine were selected to increase the yield of infected carcasses. The twenty gram diaphragm samples were digested with a proteolytic enzyme to detect the muscle larvae, a method considered to be more sensitive than direct microscopic examination since a larger sample may be examined. Of the twenty-nine (3.6%) swine which were positive to the S-K test, two were shown to contain larvae in the diaphragm muscle. There were no false negative tests.

The writer believes that further investigation is necessary to determine if the sensitivity of the S-K test is comparable...
to that of the direct microscopic examination as utilized by those countries which would accept this test in lieu of their own. It must be determined what percentage of swine found positive by their examination are found to be positive by the S-K test. It is apparent that a recently infected pig could contain infectious trichina larvae, but could not be detected because the S-K antibody is not yet present at the time of slaughter. If foreign countries requiring the microscopic examination of swine carcasses would accept this simple serologic test, the meat industry in this country could economically provide the inspection service.

FOOTNOTES
3. Ibid., pp. 97-98.
4. Arthur H. Bauer, interviewed by Clark S. Patton (State Laboratory, 382 West Tenth Avenue, Ohio State University Campus, Columbus 10, Ohio) 9 A.M., February 15, 1964.
7. Personal communication, Mrs. Hazel Suessenguth, Chief Serology Section, Department of Laboratories, Mt. Sinai Hospital, 1800 East 105th Street, Cleveland 6, Ohio.

BIBLIOGRAPHY
Insecticides: Their Uses and Hazards

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At the present time there is an enormous quantity of pesticides (insecticides, weed killers, rodenticides, fungicides) being spread promiscuously in the home, kennel, hospital, and farm. It is reported in one year farmers alone used 175,826,000 pounds of insecticides, plus an even larger amount of weed killers, fungicides, and other pesticides.

The term “pesticide” has a very broad meaning. It denotes a chemical substance, a mixture of substances, or any other agent used to kill pests. These pests are any unwanted form of plant or animal life, which may be insects, bugs, rodents, fungi, weeds, algae, nematodes, or any living thing that people want destroyed. The word “pesticide” is very widely used at the present time to include a number of more specific terms. “Insecticide” is a more specific term used to describe agents that destroy insects and their near relatives. Other terms used to describe specific pesticides are: larvicides for the destruction of larvae, aphicides for plant lice, miticides for mites acaricides for ticks and mites on animals. Fungicides are agents used against fungi, herbicides against weeds or unwanted plant life, and rodenticides against rodents.

Probably all of us are equally guilty of the misuse of pesticides for we spread them in the home without care, on the farm without regard for others, on meat animals without a sufficient holding period, and in countless other harmful ways.

Prior to 1940, there were only a limited number of insecticides—pyrethrum, rotenone, lime and sulphur, arsenic, and a few others—used for animal parasites. Today there are about 500 basic chemicals used in more than 54,000 registered pesticide products. Of these, approximately 250 chemicals are used in about 38,500 agricultural formulas.

Today the farmer, the veterinarian, the physician, and the housewife use many of these to control insects and mites, destroy both internal and external parasites in animals, kill weeds, control plant diseases, prevent too much fruit from “setting”, make leaves drop so that harvesting may be easy, make seeds sprout, keep seeds from rotting before they sprout, and many other uses and ways. But it is interesting to note that in all of these uses we are contaminating our food with “poisons”.

The benefits from the use of pesticides far outweigh the abuses or hazards from their misuse. But in order to derive the greatest benefit from pesticides everyone should be aware of the hazards from their abuse by misinformed people, careless people, or people who just do not care what may happen to others as long as they feel they are being benefited.

Many other products, beside pesticides, used in the home, farm, or in everyday practice can be extremely toxic if they are misused. The user and others are safe if the chemicals are not misused. It is not the use of these household products that is dangerous, but rather the misuse. All of these products can be used with safety, if the label is thoroughly read, and precautions and restrictions in the use of the product are followed from the label. The manufacturer, through the label, always warns the user of the hazards.

Everyone that uses insecticides should realize they are poisons. These poisons which react on the body of insects will also act on the body of man and animals. Insecticides, where improperly used, can and do cause illness and even death to man and animals. In order to avoid disasters it is very important to understand insecticides and their potential menace to

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health. Care should be taken to avoid accidental poisoning or exposure from minute amounts that remain in the air, soil, water, or food. Promiscuous spraying can be a source of inhalation or ingestion of small amounts of insecticides. The United States governmental agencies set tolerance limitations on the amount of pesticide residues on food crops and in meat.

The two government agencies that control or enforce the use of various pesticides are:

1. The Pesticide Regulations Division, Animal Research Service, United States Department of Agriculture.
2. The Food and Drug Administration, Department of Health, Education and Welfare.

Federal control over safety of pesticides is accomplished under two major laws:


"The IF & R Act is a label registration law. It requires pesticides manufacturers to register their labels with USDA. In order to qualify for registration, the manufacturer must show that the pesticide will be: (a) effective in controlling the pests for which it is intended, and (b) safe for the user, other people, or animals in the area, and to other crops, when used as directed."

"But many pesticide labels do recommend food crop uses that will leave residues. In such cases FDA has the responsibility for seeing that the amount of residues will be safe for consumers. Before FDA acts to set a tolerance, however, USDA must certify to FDA that the pesticide will be useful in agriculture, and say what amount of residue will remain on the crop". (From Pesticide Residues, FDA Publication, No. 18, Oct. 1963).

The instructions on the label is very important and should be very carefully read before any use is made of an insecticide. The general motto for safe use of any pesticide is: "For Safety Sake—Read The Label".

The general public, as a rule, does not read labels and follow their instructions. With pesticides, the recommendations and instructions on the label should be carefully followed.

There are five rights for the safe use of Pesticides.

1. Use the right pesticide,
2. In the right amount,
3. At the right time,
4. In the right way,
5. On the right parasite.

The proper use of pesticides is in the hands of the individual who uses them. If he fails to properly read the label or apply the pesticide correctly, then he endangers not only himself but every one else that might come in contact with it. In practicing safety with pesticides it should be remembered that all pesticides are poisons and every case of death from pesticides has been accidental misuse of a chemical poison. It is recommended that each and every time a pesticide is used the user should read the label, no matter how often it has been used before. Read the Label.

The USDA has recognized the danger from toxic residues in meats and other products. In meat the toxic substances incorporated in the tissue during life are identified as biological residues; those which gain access post mortem are known as additives. It should also be recognized in the use of insecticides and other products that the body of the animal is capable of metabolizing various compounds to change their chemical structure and toxicity. The metabolites are not always in the direction of less harmful substances but may be in the direction of much more toxic substances.

Insecticides should be properly mixed before they can be used efficiently. In the pure form most insecticides are too costly,
too concentrated, and unsuitable for direct application. There are a number of factors to be considered when the insecticide is placed before the user. One of the main considerations is where and how it is to be used; whether it is to be used on plants, animals or humans, and whether it is going to be directly applied to the body or in its surroundings. Another factor is the insect to be controlled and the best stage in its life cycle development to apply the insecticide. The cost of treatment or application should be considered along with the ease or manner of application.

There are a number of insecticide formulations available which are used to control insect pests. These include various forms of dusts, wettable powders, emulsifiable concentrates or emulsions, oil solutions, aerosols, granules, baits, and other formulations.

(The following “Precautions” are from “Insecticides Recommendations of the Entomology Research Division for 1964, for the Control of Insects Attacking Crops, Livestock, and Households”, Agriculture Handbook No. 120, U. S. Department of Agriculture. The recommendations of the Entomology Research Division are listed in over 200 pages of charts for the chemical control of insects and mites that affect crops, livestock, and the household. The insect or mite to be controlled is given, the tolerance, the minimum day for the last application for the crop to be harvested or the slaughter date for animals, formulation and strength, where and when to apply, and safety restrictions. Every veterinarian and farmer should have the Handbook as a reference in the use of the numerous insecticides and in the Safe Use of Insecticides. This handbook can be purchased from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C.)

**PRECAUTIONS**

These safeguards are for the protection of the ultimate consumer of food crops and animal products, and of honey bees, other pollinating insects, fish, and wildlife, as well as of handlers of insecticides and treated plants.

Insecticides are poisonous. Use them only when needed and handle them with care. Follow the directions and heed all precautions on the container label. Insecticides should be kept in closed, well-labeled containers, in a dry place where they will not contaminate food or feed, and where children and pets cannot reach them.

**Protection of Persons Using Insecticides**

In handling any insecticide, avoid repeated or prolonged contact with skin and inhalation of dusts and mists. Wear clean, dry clothing, and wash hands and face before eating or smoking.

Many insecticides—such as Aramite, calcium arsenate, carbaryl, chlorbenside, chlorobenzilate, cryolite, DDT, dichlorvos, Dilan, fenson, Genite 923, Kelthane, lead arsenate Lethane 384, lime sulfur, malathion, methaldehyde, methoxychlor, Morestan, naled, ovex, paradichlorobenzene, paris green, Perthane, pyrethrins, pyrethrum, ronnel, rotenone, ryania, sabadilla, Strobane, sulfur, Sulphenone, TDE, tetradifon, and Thanite—can be used safely without special water sprays. However, most concentrates and oil solutions require special precautions. Concentrated naled produces skin irritation. When handling or mixing concentrates of any insecticide, avoid spilling them on the skin and keep them out of the eyes, nose, and mouth. If any is spilled, wash it off the skin and change clothing immediately. If it gets in the eyes, flush with plenty of water for 15 minutes and get medical attention.

Some of the insecticides—such as aldrin, benzene hexachloride, chlor dane, Ciodrin, coumaphos, diazinon, dieldrin, dimethoate, dinitrobutylphenol, dinitro cresol, dinitrocyclohexylphenol, dioxathion, endosulfan, ethion, ethylene dichloride, fenthion, heptachlor, lindane, Ruelene, toxaphene, V-C 13, and Zectran—can be absorbed directly through the skin in harmful quantities. When working with these insecticides in any form, take the same precautions as with concentrates.

Bidrin, D-D, demeton, Di-Syston, endrin, EPN, Guthion, methyl bromide,
methyl parathion, Methyl Trithion, mevinphos, nicotine sulfate, parathion, phorate, phosphamidon, Telone, and tepp are extremely poisonous and may be fatal if swallowed, inhaled, or absorbed through the skin. Carbophenothion is highly toxic if inhaled or swallowed. These highly toxic insecticides should be applied only by a person thoroughly familiar with their hazards and who will assume full responsibility for safe use and comply with all the precautions on the labels. Reduce the danger of skin exposure by wearing protective clothing and equipment as specified on the container label. If called for, wear a respiratory or mask of a type that has been tested by the U. S. Department of Agriculture and found to be satisfactory for protection against the particular insecticide being used. Full-face masks are needed under certain conditions. They should always be worn by persons applying insecticides as aerosols in greenhouses and often by persons loading insecticides into aircraft or applying them by aircraft. A current list of acceptable respiratory protective devices may be obtained from the Entomology Research Division, Agricultural Research Service, Beltsville, Maryland.

The gas methyl chloride, used as a propellant in greenhouse aerosols, and the liquid carbon disulfide are both flammable and explosive. Never use them near heat or fire in any form, or open containers where there is little air in circulation without wearing an adequate full-face mask. Do not transfer ethylene dibromide from one container to another in a closed room; do not breathe the fumes.

**Protection of Persons Handling Treated Plants**

If you must transplant or otherwise handle plants within 5 days after treatment with endrin, demeton, Di-Syston, Guthion, or parathion, or within 1 day after treatment with methyl parathion or mevinphos, protect your skin by wearing clean, dry cotton gloves. If gloves become wet, replace them with clean dry ones. If you must work in close contact with treated crops, as in thinning or harvesting, you should also wear clean, tightly woven clothing.

**Treatment for Poisoning**

If an insecticide is swallowed, induce vomiting by giving 1 tablespoonful of salt in a glass of warm water; repeat until vomit fluid is clear or the odor of solvent is gone. Have the victim lie down and keep quiet. Call a physician immediately. If a concentrate or oil solution is spilled on the skin, remove contaminated clothing, and wash skin with soap and water. If a person suddenly feels sick while using an insecticide or shortly afterwards, a physician should be called immediately. In all cases make available the pesticide container and any attached labeling. Information provided by them is invaluable to the physician.

In many cities there is a Poison Control Center that will have available information concerning symptoms and treatment of cases of actual or suspected poisoning by pesticides; consult your local telephone directory. If you cannot obtain this information locally, call the U. S. Public Health Service at Atlanta, Ga., or Wenatchee, Washington.

**Protection of Honey Bees and Fish and Wildlife**

To minimize losses of honey bees and other pollinating insects, make insecticide applications, when possible, during hours when the insects are not visiting the plants. Avoid drift into bee yards and adjacent crops in bloom. Growers should notify beekeepers at least 48 hours before dusting or spraying large acreages, so that measures can be taken to protect the bees.

To protect fish and wildlife, be careful not to contaminate streams, lakes, or ponds with insecticides. Do not clean spraying equipment or dump excess spray material near such water.

**Avoiding Harmful Residues on or in Food and Feed**

Residues in excess of the established tolerances can be avoided by applying only those insecticides specified for use on the crop or livestock and by following indicated schedules. Do not exceed recommended dosages. Observe carefully the safety restrictions, especially the re-
quired interval between the last application and harvest or feeding and between the last application and slaughter of animals.

Avoid drift of insecticide sprays or dusts to nearby crops or livestock, especially from applications by airplane and other power equipment. Do not allow poultry, dairy animals, or meat animals to feed on plants or drink water contaminated by drift of insecticides.

Byproducts from a number of crops treated with insecticides may be safely fed to livestock or poultry if the crops are harvested or fed after the specified waiting period. However, byproducts from some crops treated with certain insecticides may contain insecticide residues that will appear in meat, milk, or eggs in excess of established tolerances when fed to livestock. Before use, it should be determined if such byproducts as sweet corn or other ensilage, bagasse, alfalfa threshings, apple pomace, bean and pea vines, sugar beet pulp and tops, and cottonseed meal and hulls are safe for feeding to dairy animals, poultry, or animals being finished for slaughter.

You're The Doctor

By Frank Goldsmith, Vet. Med. IV

Case 1.

You are called to the local outstanding Wire Haired Terrier kennel to solve a problem of death in puppies. The owner, Mrs. Fatbill, has noticed loss of a few pups from litters for the past two months and has had a few bitches apparently abort. She had not considered the losses significant until recently. You question her and find out that the abortions occurred in two females. The puppy losses amount to two pups born dead with three apparently normal litter-mates and yesterday morning the owner found a bitch with four dead puppies.

You examine the three puppies from the litter in which two pups were born dead. They are small and underweight for five week old pups and one seems to be very weak. The owner reports that these pups have never been very thrifty and have had a slight diarrhea since birth.

Your post mortem examination of the stillborn pups reveals a slight enlargement of the liver, hemorrhagic intestinal mucosa, and signs of meningoencephalitis. You arrive at a few diseases you feel are pretty good possibilities and question the owner further about her adult stock. She tells you about the sudden death of one of her young males about three or four months ago. He developed a bloody diarrhea, nasal and ocular discharge, and nervous signs typical of an advanced case of distemper. He died within 36 hours. Mrs. Fatbill says she thought it was a distemper break. You inquire about her vaccination program. She says she does her own vaccination with permanent shots at three months and again in two weeks.

She then tells you about some general widespread trouble in her older dogs. They show some vomiting, diarrhea, lack of appetite, coughing, and slow loss of weight. These signs have been seen infrequently in many different dogs and none of the dogs have been sick enough to take to the veterinarian.

Your examination of the older dogs reveals conditions as described by the owner. Some of the dogs that are currently showing signs have a fever of 1 to 1.5 degrees. Harsh lung sounds are heard in some of the dogs. Altogether, about 25% of Mrs. Fatbill's dogs show some manifestation of the disease.

You draw serum samples and blood samples for a complete blood count from a few of the dogs. Results indicate a slight anemia and white cell counts up to 12,000 to 16,000 with a neutrophilia.

The next day Mrs. Fatbill brings one of her five week old puppies in that has suddenly taken a turn for the worse. He has a temperature of 103.8 degrees, profuse diarrhea, is vomiting and becoming dehydrated. In spite of intensive treatment he dies on the second day. Your necropsy findings of encephalitis, necrotic areas of the liver, hemorrhagic mucosa lining intestine, and enlarged spleen confirm your tentative diagnosis of ..................
Case 2.

Mr. R. Nick calls you out to his Standardbred stable to examine some of his horses. Mr. Nick has a fine stable of approximately 45 head with full facilities for training. Some of his horses are stabled at the track and ten of them have just returned from Florida.

Mr. Nick’s complaint is that about two days ago he noticed some of his horses coughing and sneezing. This has progressed to about 20% of his horses. In answer to your questions he tells you that the horses returned to the farm were kept separate from the other stock for over a week and then all were turned together.

Your physical examination of some of the affected animals reveals a temperature of 100.5 to 103.5° F. Most of the horses have a nasal and ocular discharge ranging from serous to a profuse mucopurulent discharge in one horse. Many of the affected horses are sneezing or snorting and there is a dry to moderately productive cough. Auscultation of the lungs reveals a general distribution of harsh lung sounds. Many of the horses are sore in the area of the pharynx and a few have marked enlargement of the lymph nodes of the head and neck. There is only one horse showing any diarrhea and it is the one with the profuse discharge.

You tell Mr. Nick that he has an outbreak of ________________ starting and proceed with your treatment.

ANSWERS

Case 2.

Case 1. "Pulmonary" Bronchitis

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TO: GRADUATES OF THE COLLEGE OF VETERINARY MEDICINE

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SPRING, 1964
1964 GRADUATING SENIORS

The seniors who are graduating this June are listed as follows along with expected location, degrees and activities.

Raymond Applegate
B.S., D.V.M.
A.V.M.A.
Omega Tau Sigma

William H. Aspinall
Weston, W. Va.
(General Practice)
B.S., D.V.M.
A.V.M.A.
Omega Tau Sigma

Roger K. Beck
D.V.M.
A.V.M.A.
Omega Tau Sigma

Charles A. Beutel
D.V.M.
A.V.M.A.
Omega Tau Sigma

Darryl N. Biery
New York, N.Y.
(N. Y. Animal Med Center)
D.V.M.
A.V.M.A.
Omega Tau Sigma

Dick L. Boyd
Ashland, Ohio
B.S., D.V.M.
A.V.M.A.
Omega Tau Sigma

Kenneth A. Brush
Columbus, Ohio
(S.A. practice)
D.V.M.
A.V.M.A.
Omega Tau Sigma
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Linda W. Carpenter
Marysville, Ohio
D.V.M.
A.V.M.A.

Ann S. Clark
Charleston, S. Carolina
(S.A. practice)
B.S., D.V.M.
A.V.M.A.
Link
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John E. Deearth
Willoughby, Ohio
(S.A. practice)
B.S., D.V.M.
A.V.M.A.
Omega Tau Sigma

William D. DeHoff
New York, N.Y.
(N. Y. Animal Med Center)
B.S., D.V.M.
A.V.M.A.
Alpha Psi

Joseph N. Farkas
S. Euclid, Ohio
(S.A. practice)
B.S., D.V.M.
A.V.M.A.
Alpha Psi

Theodore S. Fickes
D.V.M.
A.V.M.A.
Alpha Psi

Max W. Flockanje
B.S., D.V.M.
A.V.M.A.
Omega Tau Sigma

Robert L. Gay
B.S., D.V.M.
A.V.M.A.
Omega Tau Sigma

Philip R. Glick
Quakertown, Penn.
(mixed practice)
D.V.M.
A.V.M.A.
Alpha Psi
P.I.F.C.

Francis H. Goldsmith
Norfolk, Va.
B.S., D.V.M.
A.V.M.A.
Omega Tau Sigma

John R. Guarasci
Maryland
D.V.M.
A.V.M.A.
Omega Tau Sigma
Phi Zeta

Lawrence E. Heider
Newton, New Jersey
(Dairy Practice)
D.V.M.
A.V.M.A.

Sarah W. Highley
Reynoldsburg, Ohio
D.V.M.
A.V.M.A.

Donald H. Hostetler
B.S., D.V.M.
A.V.M.A.

Douglas D. Hulme
B.S., D.V.M.
A.V.M.A.
Alpha Psi
Phi Zeta

William W. Hunter
Columbus, Ohio
(graduate work)
B.S., D.V.M.
A.V.M.A.
Alpha Psi

Edwin C. Johnson
Richmond, Ohio
(S.A. practice)
B.S., D.V.M.
A.V.M.A.
Phi Zeta

The SPECULUM
Paul J. Klinefelter  
Waldo, Ohio  
(L.A. practice)  
D.V.M.  
A.V.M.A.  
Omega Tau Sigma  
Phi Zeta  

Jack R. Knoll  
Bryan, Ohio  
(general practice)  
D.V.M.  
A.V.M.A.  
Omega Tau Sigma  

Dennis F. Kohn  
D.V.M.  
A.V.M.A.  
Alpha Psi  

Robert D. Linnabary  
Franklin, Ky.  
(mixed practice)  
B.S., D.V.M.  
A.V.M.A.  
Omega Tau Sigma  

Thomas L. McCartney  
Winter Haven, Fla.  
(mixed practice)  
B.S., D.V.M.  
A.V.M.A.  
Alpha Psi  

Lawrence T. McGovern  
Yuma, Arizona  
D.V.M.  
A.V.M.A.  
Omega Tau Sigma  

David M. Miller  
D.V.M.  
A.V.M.A.  
Omega Tau Sigma  

Donald M. Murphy  
Stoneham, Mass.  
(S.A. practice)  
D.V.M.  
A.V.M.A.  
Alpha Psi  

Robert L. Nehls  
D.V.M.  
A.V.M.A.  

Gordon R. Nelson  
San Francisco, Calif.  
D.V.M.  
A.V.M.A.  
Omega Tau Sigma  

James E. Novy  
D.V.M.  
A.V.M.A.  
Omega Tau Sigma  

Russell J. Nyland  
(mixed practice)  
B.S., D.V.M.  
A.V.M.A.  
Alpha Psi  

Larry N. Oldham  
D.V.M.  
A.V.M.A.  
Omega Tau Sigma  

Clark S. Patton  
Boston, Mass.  
(Angell, Memorial Animal Hosp.)  
B.S., D.V.M.  
A.V.M.A.  
Phi Zeta  

Albert F. Polk  
Georgetown, Ky.  
(Equine Practice)  
D.V.M.  
A.V.M.A.  
Alpha Psi  

Michael J. Reardon  
Ft. Lewis, Wash.  
D.V.M.  
A.V.M.A.  
Omega Tau Sigma  
Phi Zeta  

Robert W. Sayle  
D.V.M.  
A.V.M.A.  
Omega Tau Sigma  

Larry L. Scott  
St. Louis, Missouri  
(S.A. practice)  
D.V.M.  
A.V.M.A.  
Alpha Psi  

Richard K. Selby  
D.V.M.  
A.V.M.A.  
Omega Tau Sigma  

Donald M. Sells  
Mt. Orab, Ohio  
(General Practice)  
D.V.M.  
A.V.M.A.  
Phi Zeta  

Jack E. Shanks  
Damascus, Md.  
(Res. Vet., Silver Springs Farm)  
B.S., D.V.M.  
A.V.M.A.  
Alpha Psi  

Estel E. Snyder  
Wilmington, Ohio  
B.S., D.V.M.  
A.V.M.A.  
Omega Tau Sigma  
Phi Zeta  
Speculum  

Alfred C. Standon  
Lorain, Ohio  
B.A., M.A., D.V.M.  
A.V.M.A.  
Phi Zeta  

Earl O. Strimple  
D.V.M.  
A.V.M.A.  
Alpha Psi  

John D. Toft  
Cleveland, Ohio  
(S.A. practice)  
D.V.M.  
A.V.M.A.  
Omega Tau Sigma  
Phi Zeta  

Herbert C. Topp  
Mechanicsburg, Ohio  
(L.A. practice)  
D.V.M.  
A.V.M.A.  
Omega Tau Sigma  
A.D.S.A.  

Richard P. Tschantz  
Nevada, Ohio  
(L.A. practice)  
B.S., D.V.M.  
A.V.M.A.  
Omega Tau Sigma  

Richard S. Werner  
Low Center, Ky.  
(General Practice)  
B.S., D.V.M.  
A.V.M.A.  
Omega Tau Sigma  

Oram C. Woolpert  
Carstairs, Alberta, Canada  
(L.A. practice)  
D.V.M.  
A.V.M.A.  
Omega Tau Sigma  

Wallace B. Wright  
B.S., D.V.M.  
A.V.M.A.  
Omega Tau Sigma  

Aubrey E. Wyatt  
Dayton, Ohio  
(S.A. practice)  
B.S., D.V.M.  
A.V.M.A.  

SPRING, 1964  

27
With Spring peeking its head rather hesitantly through Winter’s door, the sun boldly beckoning one to enjoy the out-of-doors, and studies vainly tugging at our shirttails, the brothers of OTS plunged headlong into Spring Quarter activities.

The first official business undertaken was the election of officers for the coming year. Those elected were as follows:

President .................. Richard Bing
Vice-President ......... Richard Marshall
Secretary................. Richard Bohning, Jr.
Treasurer................... Gary Davis
Assistant Treasurer....... Gene Schraw
Social Chairman........... David Zipf
Rush Chairman............. James Edwards
Sergeant-at-Arms........ William Reynolds
Parliamentarian........... Jay Richardson
Chaplain................... Donald VanVlerah
House Managers............. George Reed,
Donald Jackson

Darryl Biery, after an outstanding year as the chairman of the Alumni Relations Committee, officially turned over his duties to his able successors, Leonard Breiding and Jack Swagler.

Omega Tau Sigma again offered its challenge in the Intramural events and made an honorable effort in both softball and golf.

Socially, the fraternity offered an all-day party, picnic, and hayride at Frontier Ranch as well as a novel party at the house called the “Old American Standard Party.” To top off Spring Quarter activities the Senior Sendoff was once again held at the Desert Inn on May 16. This was preceded by a cocktail party, for seniors only, at the house and as expected, it was a great success. Dancing to Tommy Spafford’s Band terminated the annual festivities.

We were saddened to learn of the death of Professor Emeritus Dr. R. E. Rebrasser and offer our deepest sympathy to his family in their tragic loss.

As Spring Quarter draws to a close, we once again wish the best to the seniors and eagerly await the arrival of Fall so that we may fill the vacancies left by the seniors and welcome the Grand Council to Gamma Chapter.
The objective of this discussion is to point out the salient features of the regulation of the urinary system of the dog and to apply those features which may be useful in an understanding of urinary system disease.

The Anatomy
The kidney receives an abundant supply of sympathetic nerves arising primarily from the first four lumbar spinal nerves. Minor fibers are also derived from the vagus. A combination of these fibers from the splanchnic and abdominal ganglia make up the renal plexus, a network lying along the renal artery to the hilus from which fibers enter the kidney with the renal vessels and terminate along the afferent and efferent arterioles and some between the cells in the renal tubules. There are also afferent fibers from the renal pelvis and ureters upon which excitation gives rise to renal pain.

The Nervous Control of Renal Blood Flow
Information relative to the nervous control of the renal blood flow has been investigated by denervating one kidney of an animal and allowing the other kidney to act as a control. Renal blood flow measurements are then made. In the unanesthetized animal in a recumbent position the renal blood flow of the denervated kidney does not differ from the innervated kidney. This implies that under resting conditions there is no tonic sympathetic influence on the renal vascular blood. Under anesthesia it has been shown that renal blood flow increases in the denervated kidney. This implies that under anesthesia there is decreased blood flow to the normal kidney via sympathetic stimulation due to anesthesia and therefore there would be a reduction in total urine formation in the normal animal.

Hypoxia
Hypoxia produces a neurogenic vasoconstriction of the renal vessels. However, it must be a severe hypoxia, i.e., arterial oxygen saturation below 50%. The mechanism of this neurogenic vasoconstriction is via the chemoreceptors in the carotid sinus.

Hypercapnia
Hypercapnia: While breathing in as low as 5% concentration of carbon dioxide in air, vasoconstriction of neurogenic origin occurs.

Hypotension
A fall in blood pressure will reduce the renal blood flow. This is mediated via the pressoreceptors in the carotid sinus or aortic arch, which in turn augments the sympathetic vasoconstrictor fibers to the renal vascular bed. Thus a fall in blood pressure reduces total urine production.

Nervous Control of the Tubular Function
After denervation of the kidney an increase in sodium excretion may be found suggesting that a decrease in absorption by the tubular cells has occurred. However, the glomerular filtration rate also simultaneously increases. This in itself can cause an increase in sodium excretion. There still remains the question of whether or not the nerves to the kidney have some control over the electrolyte concentration in the urine. There is no evidence at the present time to substantiate such a phenomenon.

Exercise
If an animal is placed on a treadmill and caused to run at up to 10 miles per hour at a 15% slope and the renal blood flow is measured, no change can be demonstrated. It would appear that even under exercise the nervous regulation to the kidney maintains a constant output.
of urine.

From the aforementioned observations one may conclude that there are sympathetic fibers to the kidney which apparently do not exert a tonic vaso tonus as is seen in other parts of the body. They do, however, exert a vasoconstrictor influence under severe stress situations such as anesthesia, hypoxia, hypercapnia, hypotension, and exertion. Apparently the sympathetic fibers have little influence on the regulation of secretion or reabsorption of electrolytes. A neurogenic vasodilator (parasympathetic) autonomic mechanism is apparently non-existent and only vasoconstriction can be produced via the nervous system. Afferent fibers are present which upon excitation give rise to renal pain and may cause anuria by reflex vasoconstriction.

Ureters

The ureters in their anterior part receive sympathetic fibers from the renal plexus, in the middle part from the spermatic or ovarian plexus, and near the bladder from the hypogastric nerves. The existence of parasympathetic fibers has not been demonstrated anatomically. The sympathetic fibers exert a motor effect which apparently regulates peristolic wave-like activity of the ureters. Inhibition may also be sympathetically initiated. Afferent fibers for the transmission of pain are assumed to be present since ureteral spasms can cause acute pain.

The incidence of abnormalities or diseases of the ureters in the dog is low or the diagnoses of such conditions are not made. Ureteral spasm is known in man associated with renal calculi and the passage of such small stones through ureter. Reported cases of this condition in the dog are rare. Perhaps some of the acute abdominal pain syndromes seen in the dog may be associated with ureteral spasm.

The Bladder

The urinary bladder is composed of two parts: (1) the body composed mainly of the detrusor muscle and (2) the trigone, a small triangular area near the mouth of the bladder through which both ureters and the urethra pass. About two centimeters beyond the bladder the urethra passes through the so-called urogenital diaphragm, the muscles of which constitute the external sphincter of the bladder. This muscle is a striated muscle controlled by the perineal nerve.

Innervation of the Bladder

Efferent or motor fibers: The bladder is innervated by both sympathetic and parasympathetic fibers. The parasympathetic fibers cause excitation and constriction of the detrusor muscle and some relaxation of the trigone. The sympathetic, when activated, cause the opposite reaction.

Afferent fibers: There are afferent fibers which are connected to stretch or pressure receptors in the bladder wall especially around the trigone. The afferent fibers cells of origin are in the dorsal root ganglion of the sacral nerves. Reflex centers are located in the lumbar-sacral cord and in the midbrain which coordinate with each other to initiate and maintain the micturition reflex. In addition, inhibition of the reflex centers by the cerebral cortex is developed in the mature animal.

Micturition

Micturition in the adult animal is a complex voluntary and reflex act. As the bladder slowly fills with urine the pressure within the bladder and the stretching of the bladder originates impulses in the sensory nerve endings. These impulses travel up to the reflex centers and are summated until they result in a sudden discharge of efferent impulses of 2 kinds: (1) motor impulses to all of the fundus of the bladder, and (2) inhibition of the tonic contraction of the sphincter muscles. The result of these two processes is a complete emptying of the bladder. This act is dependent upon intact centers in the spinal cord and higher centers in the brain stem. There have been described 6 separate reflexes involved in the micturition reflex complex. (1) Contraction of the bladder when the internal pressure reaches approximately 100 millimeters of water. (2) Contraction of the bladder as
a result of fluid running through the urethra. (3) Contraction of the bladder when the first part of the urethra is distended. (4) Relaxation of the urethra when fluid passes through it. (5) Relaxation of the urethra when the bladder contracts. (6) Relaxation of the smooth muscle of the proximal third of the urethra when the bladder is distended. All of the above are sequentially coordinated for the micturition reflex act.

The Behavior of the Bladder After Spinal Cord injury

Spinal cord injury in the dog is not uncommon. It is frequently associated with herniation of the intervertebral disk. It also occurs in accidents in which the vertebral canal is traumatized. Injury of any part of the spinal cord will have some effect on the micturition reflex. This is because of the higher center control, by inhibition or facilitation, of the lumbo-sacral reflex centers. The most marked effect is seen when the injury is in the last thoracic or lumbo-sacral area. Injury to the spinal cord disrupts the micturition reflex. At first there is complete loss of reflex control for several hours to days. During this time the bladder fills and becomes very distended and frequently to the point of overflow. This is a very critical time for the patient. Not only are the micturition reflexes non-functional, but in addition, almost all the cord reflexes are involved. It has been stated recovery from this state of cord shock may be greatly enhanced, and often the time for recovery is shortened, if the bladder is kept completely empty by continuous drainage or by frequent expression. Supposedly distension of the bladder evokes afferent inhibitory reflexes that tend to prolong cord shock. After the initial stage of complete paralysis there is a gradual recovery of the reflex systems and the animal may go on to complete recovery in a period of from two to four weeks. If the injury of the cord is permanent as is seen in severe trauma or severe disk protrusion, the animal develops a so-called "automatic bladder." The automatic bladder is not under volitional control. It does not fill as full as a normal bladder before evacuation occurs automatically. When it does empty the urine flows in short squirts and the bladder never completely empties. Ascending bacterial infection is always a danger in the automatic bladder just as it is in the chronically distended bladder.

Hydrocephaalus In The Dog

By R. Barry Prynn, Vet. Med. III

Hydrocephalus is the slow accumulation of excessive cerebrospinal fluid, in the lateral and other ventricles and sometimes in the subarachnoid spaces, due to obstruction of the cerebrospinal fluid. There is normally a continuous secretion of fluid from the choroid plexus located in the lateral ventricles. Drainage occurs through the aqueduct of Sylvius into the fourth ventricle from which the fluid then passes through the Foramina of Luschka into the basal cisterns of the subarachnoid space.

"While the mechanism controlling edema plays some role in hydrocephalus, the primary cause of fluid accumulation is felt to be mechanical obstruction occurring in the aqueduct of Sylvius or the Foramina of Luschka, the tentorium cerebelli or displacement of the brain within the calvarium." Inflammatory exudates, tumors, and parasites such as Coenurus cerebralis may occasionally plug the openings or apply pressure at
key points. Hydrocephalus as it occurs in the newborn is attributed to the mal-development of some of the minutely formed drainage structures.

The principal effect of obstructed drainage is pressure atrophy of the cerebral parenchyma. The most common form of hydrocephalus is the "internal hydrocephalus" in which obstruction of drainage anterior to the subarachnoid spaces causes gradual enlargement of the ventricles at the expense of the parenchyma which results in thinning of the cerebral cortices into a shell around the ventricles. A less frequent form is the "communicating hydrocephalus" in which interference with drainage occurs somewhere in the subarachnoid spaces and pressure atrophy also proceeds from the exterior of the brain due to fluid accumulation between the dura and the parenchyma.

Young animals with congenital hydrocephalus, if they survive, may show signs of being mentally deficient or stupid, depending on the degree of hydrocephalus. Symptoms of hydrocephalus are indefinite and may be confused with encephalitis or brain tumors. If hydrocephalus occurs prior to closure of the fontanelles the head is enlarged and large open fontanelles may be palpated. If the condition occurs after the sutures are ossified diagnosis may be impossible by observation alone.

The animal may show progressive loss of intelligence, impairment of sight, and seems easily confused if objects are placed in its path. The animal may stand in a corner unable to find a way out of the corner. The gait may show evidences of dysmetria, hypometria, or hypermetria. Epileptiform seizures and vomition are inconstant occurrences and are not necessarily diagnostic since they may occur with other conditions. Ocular examination may reveal edema of the optic papilla. However, this condition is observed in association with any disorder resulting in increased intracranial pressure and in some conditions where there is no increase in pressure. However, when it occurs with the other symptoms of hydrocephalus it is a significant part of the examination.

"Acquired hydrocephalus" is most commonly attributed "to inflammatory lesions resulting from some infectious disease such as infectious encephalitis". In some cases the lesion causing the obstruction cannot be demonstrated and this type is designated "idiopathic hydrocephalus" and is "attributed to interference with the absorption of the cerebrospinal fluid".

Recently in our routine electroencephalography we have been presented several cases of hydrocephalus. Five of these cases were rather obvious from the external appearance and symptoms mentioned previously. Two cases were somewhat less obvious. All of these animals eventually died or were euthanized at the owners' request and hydrocephalus was verified at necropsy.

The electroencephalographic recording has been consistent and characteristic in each case. The pattern is seen as a diffuse high amplitude (50-300 uv) hypersynchronous slowing (1-3 cps) occurring in all leads.

"Radiographically in hydrocephalus the brain cavity appears homogeneous as in the normal animal and the brain cavity appears unusually large when compared with the rest of the skull". The temporal, frontal, and occipital bones may be thinned. While these findings are readily detected in most breeds they are more difficult to detect in the Chihuahua. In difficult to diagnose cases pneumoventriculography may be employed. The injection of air into the lateral ventricles clearly shows the extent of the condition. Pneumoventriculography is a dangerous procedure and only a skilled radiologist should undertake such an examination.

The degree of impairment of function is directly proportional to the degree of hydrocephalus and the resulting loss of cerebral parenchyma. In most cases the eventual outcome is death.

References

The SPECULUM
Drs. Donovan and Venzke on March 23 and 24 presented a short course on clinical endocrinology and steroid hormone application in small animals at Texas A & M University, College Station, Texas.

Drs. Donovan and Venzke presented a short course on Steroid Hormones and Their Application in Small Animals at Sisson Hall on March 11.

Drs. Charles D. Diesem and Aaron Horowitz on March 24 and 25 presented a short course on Equine Surgical Anatomy at the college.

Dr. Tharp presented a talk at the Ohio Horse Clinic, held at O.S.U. and at the Ohio Exposition Center Coliseum. His speech was titled “Breeding Hygiene, Development of the Fetus, Foaling Practices, and Tips on Stallion Management.

Dr. Tharp spoke to the Cincinnati Veterinary Medical Association on April 21. His topic was Reproduction in Cattle.

Dr. Tharp, Dr. Krill, Dr. Donovan and Dr. Henthorne attended the Workshop on Graduate Education in Laboratory Animal Medicine, on March 25-27 held in Washington, D. C.

Dr. Wearly spoke at the Ohio Horse Clinic on “Parasites, Their Incidence, Control, and Treatment.”

Dr. Murdick received his Ph.D. degree in March in Veterinary Physiology. His dissertation was Electric Activity of Pregnant Sheep Uterus.

Veterinary microbiology obtained a grant of $3200 from the University for the purchase of equipment for their research laboratories.

Drs. Kreier, Pearson, and Talker attended the annual anaplasmosis research workers meeting at Urbana, Illinois, April 21-24. The CA (capillary agglutination) test for the diagnosis of anaplasmosis is rapidly gaining acceptance by the workers in the field.

Several members of the Department participated in the program of the International Academy of Pathology, April 5-8. Dr. Bert Koestner and Leopold Liss, M.D. presented a short course on April 8, on Comparative Neuropathology. The purpose of the course was to inform medical pathologists about animal diseases and aid them in the proper selection of animals for the study of comparable diseases in man. The course also provided knowledge to assist the physician in tracing the source of the twenty-eight anthropozoonoses affecting the central nervous system of man and animals. Dr. Kasza was elected to membership in the International Academy of Pathology.

Dr. Clarence Cole served as Chairman of the Scientific Session on Immunopathology. Dr. Louis Kasza and Dr. Koestner presented the results of their research entitled “Behavior of Canine Tumor Cells in Artificial Media and the Pathologic Reaction of these Cells to Viruses.”

Dr. John P. Gibson will receive his Ph.D. degree in Veterinary Pathology at the June Commencement. The title of his dissertation is “Experimental Distemper in the Gnotobiotic Dog”. On July 1, Dr. Gibson will assume his new position in the Department of Pathology and Toxicology at the Merrill Company in Cincinnati, Ohio. In November, 1964, he plans to take the national board in Veterinary Pathology to obtain his certification to practice Veterinary Pathology.

Dr. Edwin A. Holzinger, who received
his D.V.M. degree from Purdue University, will replace Dr. Gibson on the faculty. In June, Dr. Holzinger, his wife Caroline, and their three children will be welcomed to the University community.

Dr. Walter F. Loeb, Assistant Professor and Chief of the Division of Clinical Pathology, has been awarded a year's leave of absence to continue his graduate work. His duties in teaching pathology courses will be assumed by Dr. Gaylord E. McKissick, who received his B.S. degree at Westminster College, his D.V.M. degree and M.S. degree in Comparative Pathology at the University of Pennsylvania, and his Ph.D. degree from Purdue University. Dr. McKissick is currently an instructor at Purdue who will move with his family to Columbus to assume his duties as Assistant Professor and Director of the Clinical Laboratories on July 1. Dr. McKissick has a background of six years experience in teaching and research. His best known publications include: "Hog Cholera Virus in Subculturable Leukocyte Cell Cultures"; "Coronary Arteriosclerosis in Isolated, Paired, and Grouped Chickens"; and "Immunization of Swine Against Hog Cholera Through Exposure to an Aerosol of the Virus".

Dr. Clarence Cole has been invited by Dean Severi to participate in the International Conference on Lung Tumours in Animals, to be held at the Institute in Perugia, Italy, in June, 1965.

Dr. Cole presented a lecture before the O.S.U. Open Court entitled "Peaceful Co-existence in Biology".

Dr. Richard A. Griesemer was honored by the National Society for Medical Research and was awarded a certificate of merit with the following citation: "In recognition of vital contributions to public health and welfare made by helping to inform the public of the experimental method underlying the achievements of the biological sciences".

Drs. Del Favero, Fowler, Holman, Loeb, Nagode, and Rohovsky and Mr. Kindig attended a seminar on Gas Chromatography under the auspices of the American Association of Clinical Chemists, at Miami Valley Hospital in Dayton on February 22, 1964.

Dr. Loeb presented a paper on the subject of Leukemia in animals to the meeting of the Central Ohio Society of Medical Technologists on April 6, 1964.

Dr. Loeb spoke at the meeting of the Ohio Society of Medical Technologists on May 1, 1964. His topic was "Species Differences in the Morphology of Blood Cells."

• Physiology and Pharmacology

Dr. Thomas Powers spoke to the Cleveland Academy of Veterinary Medicine on "Steroid Therapy in Small and Large Animals," at Cleveland, Ohio, April 1, 1964.

During the current quarter, Dr. Robert Hamlin has spoken to several groups, including the Cincinnati Veterinary Medical Association, Wayne County Heart Association, Steubenville Rotary, and the department of physiology at Michigan State University.

Several members of the Department participated at the conference on Comparative Cardiology, sponsored by The New York Academy of Sciences, April 29-May 1. Dr. C. R. Smith presented "Comparative Aspects of the Normal Electrocardiogram," and Drs. Crocker and Hamlin participated in the panel discussion of this topic. Dr. D. Smetzer was a member of the panel discussing "Heart Sounds and Murmurs".

• Preventive Medicine

The Department of Preventive Medicine has received permission from Vice-President Carson's office to experiment with a Tele-Lecture system of communication. This system has already been used twice successfully—see "History in the Making" in this SPECULUM.

The Department is accepting a student from Indonesia to pursue work leading to Master of Science degree.
Dr. Payne has been conducting studies relative to the effects of murawave irradiation on the rabbit. These studies are being carried out initially at the radar site at Ohio University at Athens.

Dr. D. O. Jones has been active in the following committees: Committee on Environmental Health, ad hoc committee member of University Health Education, Faculty Club membership committee. Dr. Jones was toastmaster at the annual Athletic Awards Banquet at Dublin High School. He also has presented several short courses in continuing education programs for graduate veterinarians and is engaged in the Continuing Research programs in dairy cattle health and food hygiene.

Dr. Linerode has completed the first trials on feeding horses a special synthetic (purified) diet in pellet form, in conjunction with Dr. William J. Tyznik. Co-operative studies between Dr. Linerode and Dr. Hilton Smith, of Fort Knox, Kentucky, are underway, dealing with the prevalence of lymphomatosis in the dairy cattle at the Dayton Mental Institute. Dr. Linerode is also involved in a special study in the role of the thymus in the immunologic response of the animal and is doing research in progress on intestinal absorption of antibodies from the newborn pig.

**Small Animal Medicine**

Dr. Donovan and Dr. Wyman have published a paper in the Journal of Veterinary Research on fundus photography of the eye.

Dr. Wyman will go to Denver, Colorado on June 22 to present this paper at the meeting of the Morris Animal Foundation annual conference.

Dr. Whiteus, the unofficial ambassador of good will from the O.S.U. clinic, has traveled extensively, giving speeches pertaining to the operation and management of a veterinary hospital. On October 3, he spoke to the District of Columbia Academy of Veterinary Medicine. On February 10, Dr. Whiteus addressed the Arkansas Veterinary Medical Association. March 18-19, Dr. Whiteus traveled to Pennsylvania to speak to the Western Pennsylvania Veterinary Medical Association and the Penn-Allegheny Veterinary Medical Association.

**Surgery**

Dr. Roenigk and Dr. Hamlin attended a Radiology-Cardiology short course in New Jersey held late in April. They will conduct a similar short course in Cincinnati on May 17.

Dr. Johnson presented a speech at the Ohio Horse Clinic titled “Unsoundness of the Horse, Cause, Care, and Treatment.”

Dr. Johnson also addressed the Pre-Vet Club on April 8 providing an interesting and stimulating talk on the subject of “How the Horse Has Affected Your Heritage and Destiny.”

Dr. Gabel talked to the Northwestern Pennsylvania Veterinary Medical Association on April 15, in Butler, Pa. His topic was “Surgery of the Bovine Foot and Udder.”
The Student Chapter of the A.V.M.A. held the annual recognition banquet on May 9 at the Christopher Inn. President Herbert Topp gave the welcoming address and Jeffrey Peacock served as master of ceremonies for the evening. Following the banquet and presentations a dance was held for the balance of the evening. The following awards were presented.

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 25 percent of the senior class who had not previously been extended the honor. Senior recipients: Darryl Biery, William Aspinall, Roger Beck, John Guarasci, Ed Johnson, Donald Sells, Gene Snyder, and James Vondruska. Junior class recipients: Sampson Chema, Dale Hague, Irwin Leav, James Ross, George Rowland, Keith Sugaski, John Tomlinson, and William Webster.

A.V.M.A. AWARDS
Seniors who have been members in good standing through their college career are: Ray Applegate, Darryl Biery, Ed Dearth, Frank Goldsmith, John Guarasci, Larry Heider, Robert Linnabary, Russell Nyland, Larry Oldham, Michael Reardon, Michael Reese, Ann Clark, Jack Shanks, Herbert Topp, Richard Tschantz, James Vondruska, Wally Wright, and Aubrey Wyatt. Juniors who received membership keys included: Paul Armstrong, Earl Arnhold, George Bishop, Leonard Breiding, Bruce Briggs, William Deisher, Thomas Deters, Dale Hague, Donald Jackson, Marvin Jones, Dennis Lehman, Richard Marshall, Asa Mays, Scott McOwen, James Murray, George Reed, Donald Roloff, and Jack Workman.

OMEGA TAU SIGMA AWARD
The Omega Tau Sigma Award to the senior showing the most promise in clinical medicine was given to Michael Rear- don. Mike is married, belongs to Phi Zeta, OTS, and AVMA, and will serve a tour of duty with the army before entering practice. Mike was chosen to receive this award by a committee of the clinical staff for his character, scholarship, leadership, and adeptness and interest in performing his clinical work.

NATIONAL WOMEN'S AUXILIARY AWARD
This award of $50 was presented by Mrs. W. Keith Wearly representing the auxiliary to senior Roger Beck. Roger was chosen by his classmates as having contributed the most to advance the standing of the veterinary college and the profession while in college.

AMERICAN BREEDERS' SERVICE AWARD
This award consists of a $200 scholarship and special training in bovine fertility between the junior and senior years. It was announced that Robert Linnabary received this award the previous school year. Bob is married, is the father of two children, belongs to AVMA, OTS, and has been twice chairman of Pre-Veterinary Day. He will enter a mixed practice in Franklin, Kentucky upon graduation.

UPJOHN AWARDS
Ray Glick received the Upjohn Award as the senior outstanding in large animal practice. Ray is married, belongs to Alpha Psi and AVMA and is going into large animal practice in Quaker City, Pennsylvania.

Michael Reese received the Upjohn Award as being outstanding in small animal medicine. Mike belongs to OTS, Phi Zeta, and AVMA, and he is going into small animal practice in Cleveland.

ALPHA PSI AWARD
The Alpha Psi Award was presented to Keith Sugaski as the outstanding member of the junior class. Keith was chosen by a
faculty committee for his scholarship, character, and interest. Keith is married and serves as president of Alpha Psi.

STUDENT A.V.M.A. AUXILIARY AWARD
Dale Hague's name was drawn from seven juniors who were eligible for this award, a $75 check. Eligibility was based on scholarship, active participation in AVMA, and active participation in the student auxiliary by his wife.

BORDEN AWARD
Clark S. Patton was presented this award by the Borden Foundation, Inc. This annual $300 award is given to the member of the senior class who has attained the highest scholastic record through the first three years of veterinary college. Steve is married and the father of two children. He belongs to AVMA and Phi Zeta. Upon graduation he will intern at Angell Memorial Animal Hospital in Boston, Massachusetts.

PFIZER AWARD
For the first time Pfizer Laboratories presented a scholarship to an Ohio State veterinary student. This $400 scholarship award was based on scholastic standing, need, and extracurricular activities among junior classmen. It was presented to William Webster. Bill is married and belongs to Phi Zeta, Alpha Psi, and AVMA.

ALPHA PSI ALUMNI AWARDS
The Alpha Psi Alumni Awards were presented to outstanding members of the sophomore and junior classes. Glen Hoffsis and Gary Davis divided the $150 sophomore award. Glen is a member of OTS and AVMA. Gary is married and the father of one child and belongs to OTS and AVMA. Keith Sugaski received the $150 junior class Alpha Psi Alumni Award in addition to the Alpha Psi Junior Award.

MERCK AWARDS
Personally engraved MERCK VETERINARY MANUALS were presented to Mike Reardon of the senior class and junior James Ross. These students were chosen for the award on the basis of personality, scholarship, and leadership. Jim belongs to OTS, Phi Zeta, and AVMA.

DEAN'S SPECULUM AWARD
The Dean Krill SPECULUM Award for outstanding contribution to this publication was presented to Gene Snyder. Gene has been a member of the SPECULUM staff for three years and served as editor for this past year. He is married and belongs to OTS, AVMA, and Phi Zeta.

SPECULUM AWARDS
The SPECULUM awards were presented to the staff as follows: three year awards—Ken Brush, Gene Snyder; two year awards—Bruce Briggs, Fred Birk, Tom Deters, Dennis Lehman, Barbara Stein, Paul Stull, Charles Wallace; one year awards—Frank Goldsmith, Barry Prynn, Jon Ellis, Dave Zipf.

ALUMNI NEWS


1916
Dr. L. J. Lewis of 1205 Blaine Avenue in Jamesville, Wisconsin recently received a Meritorious Service Award of the Wisconsin V.M.A. Dr. Lewis is a native of Ohio and went to Jamesville in 1922 to take over duties as a federal field supervisor in various disease eradication programs, especially bovine tuberculosis. He continued in this work until his retirement in 1957.

1935
Dr. Allen E. Corbin Jr. has a small animal hospital in St. Petersburg, Florida. Dr. A. E. Moats Sr., of Cedarburg, Wisconsin, has been elected vice-president of the new Wisconsin Association of Equine Practitioners.
1940

Dr. Robert Getty, head of the Department of Veterinary Anatomy at Iowa State University, has assembled a library of thousands of tissue samples for the microscopic study of the aging process. Dr. Getty began his work in 1952, and has a long-termed research project aimed at determining normality through the life span, and has attracted the attention of gerontologists throughout the world. Dr. Getty has stated “Until we know specifically, scientifically, and chronologically, those changes which take place from birth to senility we can’t know what the so-called ‘normal’ is.”

1941

At the recent annual seminar of the American College of Veterinary Pathologists, Dr. R. E. Habel of Ithaca, New York, spoke on “The Structural and Functional Unit of the Liver.” Dr. Habel also attended the meeting of the World Association of Veterinary Anatomists in Hanover, Germany.

Dr. Jack Dinsmore was recently elected president of the American Animal Hospital Association. Dr. Dinsmore has been in practice in Glenview, Illinois for the past 12 years. He is president of the Chicago Veterinary Medical Associations, is a well known speaker on veterinary programs, and has written many articles on surgery and anesthetics.

In his new office Dr. Dinsmore will direct the association’s activities in presenting an international small animal congress in Washington, D.C. next March and in about 20 regional conferences throughout the country.

1948

Dr. N. B. King recently submitted a paper concerning specific-pathogen-free pigs to the meeting on pig diseases and production in developing countries held in Singapore, Malaysia and sponsored by the Food and Agriculture Organization of the United Nations.

1952

Dr. Forrest Cutlip of Milan, Tennessee has been elected as the State President of the Tennessee Jersey Cattle Club. Dr. Cutlip set up practice in Milan in 1952 although he was reared and educated in Ohio. He is active in several dairy cattle associations, civic groups, and the Baptist Church there.

1954

Dr. Harry F. Bartels is practicing in a small animal practice in Brecksville, Ohio.

Dr. Paul E. Steffen, Westfield, Indiana, a general practitioner, recently returned from a three-week trip to the Caribbean.

1957

Dr. John C. Leighty, poultry inspector for the USLSA, has been selected to serve as a member of the organizing committee for the 1965 Symposium of the World Association of Veterinary Food Hygienists next summer.

THEY SERVED WELL

Dr. Frank L. Carr ('06), Alliance, Ohio, died March 5, 1964. He was a general practitioner for many years in Alliance. Dr. Carr was responsible for the establishment of the meat and dairy inspection program in that city. He served as area tuberculosis inspector for the State of Ohio, and was State Veterinarian in Ohio from 1939 to 1944. Dr. Carr had been a member of AVMA for more than 50 years.

Dr. Thomas B. Burris ('24) passed away October 15 in Bridgeport, Connecticut.


Dr. William T. Brinker ('30) died July 20, 1963, at Dayton, Ohio.

Dr. Thomas Alfred Berry ('33) passed away on November 25, in Kensington, California.

Dr. Russell W. Hammermeister ('38) died of leukemia November 26 after a short illness. Dr. Hammermeister was State Veterinarian of Kentucky and had been with the Division of Livestock Sanitation since 1960. He was instrumental in gaining for Kentucky the status as a modified certified, brucellosis-free area.

Dr. C. O. Cobb ('40), Oberlin, Ohio, died November 12, 1963. He had practiced in Lorain County, Ohio for 23 years.
Our half-century partnership with the veterinary profession began when Dr. Hans Jensen gave up teaching and founded the original ethical veterinary supply house. His purpose: Serve veterinary science by developing the products and services needed by the veterinarian to care for his clients’ animals. Jen-Sal today remains true to that original concept. Product quality is zealously guarded. Future needs of the profession are the guidelines for a vigorous, expanded research activity. Useful older products are continuously replaced with superior new ones. The original concept still holds true as we move into our 51st year: Serve the veterinary profession with honest dedication ... and distinctive products like the ones below.

**Butazolidin (veterinary) phenylbutazone**

Dramatic relief and resolution of inflammatory conditions

**Cytogen Cytogen**

Potent, reliable vaccines for canine distemper/distemper-hepatitis

Professional information:

**Action:** Butazolidin (phenylbutazone) is a systemically active anti-inflammatory agent with analgesic and anti-pyretic effects.

**Indications:**

(a) Musculoskeletal: Treatment of bursitis, arthritis, osteoarthritis, intervertebral disc syndrome, spondylitis, and painful fractures.

(b) Soft Tissues: Treatment of inflammation of the skin, tendons, muscles, eye and other soft tissues.

**Precautions:** In dogs, gastrointestinal upset may occasionally occur (about 1% of animals). Stop medication immediately when this occurs. While agranulocytosis may occur in humans, only one such case has been reported in dogs. Routine blood counts should be made in patients receiving long-term drug administration. Stop treatment in the event of significant fall in WBC, relative decrease in agranulocytes, or black, tarry stools.

**Contraindications:**

(1) Do not administer to patients having serious hepatic, cardiac, or renal damage or with history of blood dyscrasia or peptic ulcer.

(2) Not for use in food animals. Do not inject Butazolidin (phenylbutazone) by subcutaneous or intramuscular routes.

**Cytogen vaccines** are “life insured” from manufacture to your door because they are cold-packed with dry ice in exclusive, insulated Fro-Gen shippers... preventing exposure to virus-destroying temperatures. All Cytogen is produced with at least 1,000 times the virus content shown to protect dogs. Critical tests show resistance to virulent virus challenge in 24 hours ... effective antibody levels established within 14-21 days. Specially formulated stabilizer (Stabligen) assures extended shelf life by actual virus measurement and animal tests. Cytogen vaccines will not cause or spread distemper.

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**“Products to Protect Animal Health”**

JENSEN-SALSBURY LABORATORIES Division of Richardson-Merrell Inc. Kansas City 41, Missouri

SPRING, 1964
New officers for the 1964-65 school year were elected at the last business meeting of Winter Quarter. Those elected were:

President—Keith Sugaski
Vice President—Steve Stevenson
Recording Secretary—Chuck Rafflo
Chief Censor—Jim Brick
Treasurer—Lee “Roto-Rooter” McPhail
Assistant Treasurer—Paul Binning
House Manager—Dave Royer

Our Senior Send-off, held May 2 at the Jai Lai, had 196 of the “swingingest” people you’d ever want to meet in attendance. The consensus of those in attendance was, “Anyone who didn’t have a great time—just didn’t go!”

Speaking of Sports: Our No. 1 basketball team finished second in their division last Winter Quarter. Our No. 1 baseball team, owned and operated to near perfection by the junior class, can finish no less than second, with the playoff game in the very near future. At the point of being accused of jinxing the team—nice going Champs!

The 110 Club Constitution has been approved by Dr. Reed and Dr. Wenger, our 110 Alumni Advisors.

Alpha Psi would like to congratulate Dr. Murdick and Dr. Redding for their interest shown in the SPECULUM as faculty advisors.

Any Alumni not receiving the Alpha Psi Newsletter are asked to please inform us of this fact.

The last party of the Spring Quarter will be Den Scanlon’s B.Y.O.B. (Bring Your Own Bathingsuit) Party to be held at Stouffer’s Inn on May 16. Anyone not interested in swimming had best bring a suit anyway—we don’t want to spoil the image.

We deeply regret the passing of Dr. R. E. Rebrassier, a respected member of the Veterinary Profession, and a past president of our national fraternity. We would also like to extend our deepest condolences to his family.
A Little Hole Can Be the Beginning of the End

The modern veterinarian adds prestige to his profession by prescribing drugs that only he can prescribe: those of known value and efficiency manufactured by the ethical drug companies. This is the surest way to prevent an outbreak of animal disease.

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