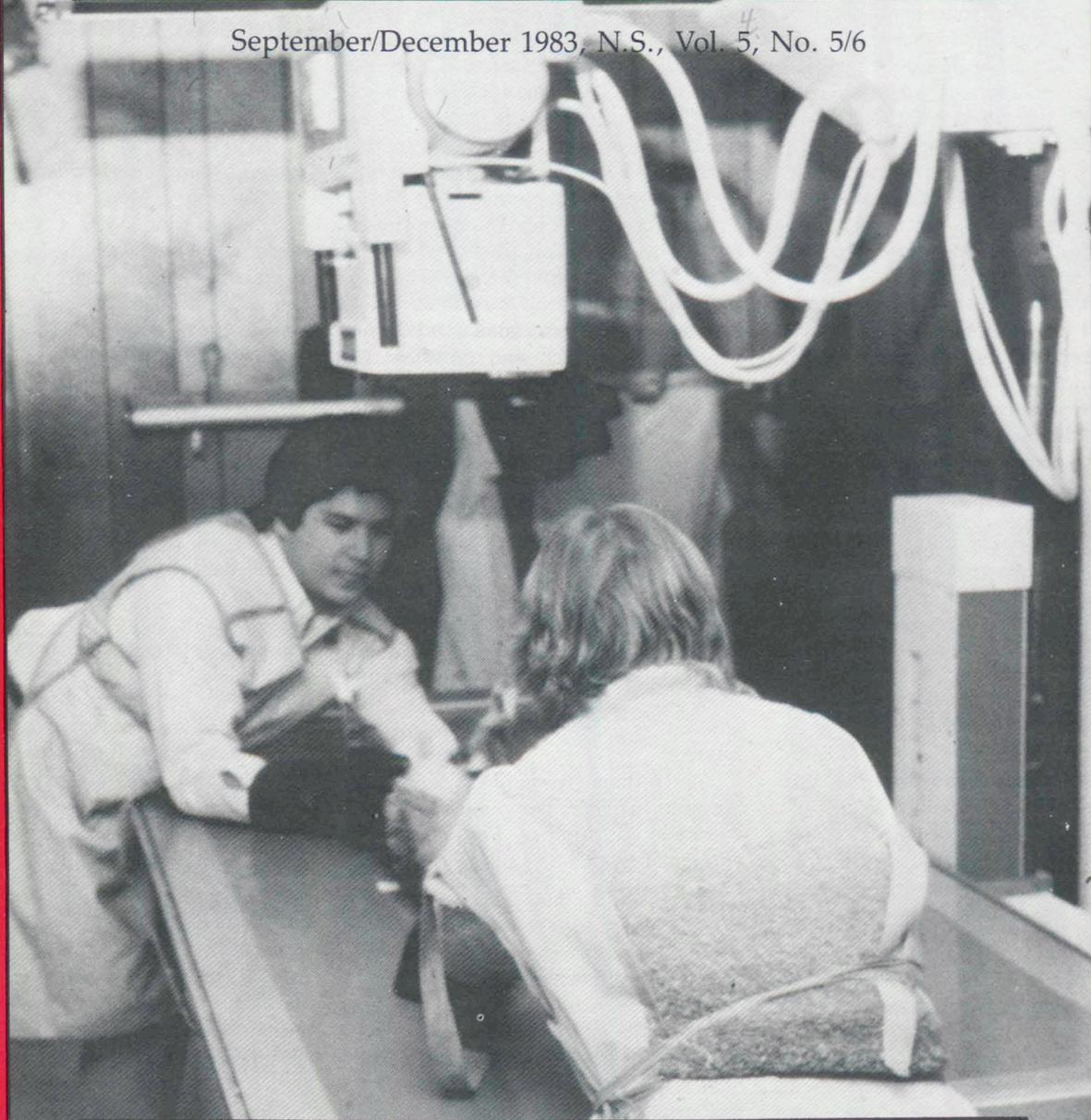


# VETERINARY MEDICAL REVIEW

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University of Missouri-Columbia  
College of Veterinary Medicine and  
Cooperative Extension Service

# Alumni Profile

## Variety Adds Spice

It is said that variety is the spice of life. If that's the case then Dr. Robert E. (Bud) Hertzog enjoys spice!

Dr. Hertzog graduated from the University of Missouri College of Veterinary Medicine in 1956 and returned to his hometown of Lee's Summit, Missouri to practice general veterinary medicine. His practice soon became much more than the ordinary. An interest in exotic animal medicine brought Dr. Hertzog to the position of veterinarian at the Kansas City Zoo. For 15 years the zoo grounds were a part of his daily veterinary calls. He is a member of the American Association of Zoo Veterinarians and attends their yearly seminars.

Dr. Hertzog says that zoo practice "has come a long way thanks to the advances of anesthesiology for exotic animals." Due to the other constraints on his time, Dr. Hertzog has now eased away from his full time activities at the zoo. However, he still serves as a consultant for the facility and he sees an increasing number of exotic animals in his own veterinary practice.

In addition to his general practice and the zoo consultations, Dr. Hertzog spends three weeks each year serving as the official veterinarian of the American Royal. He and his associate, Dr. Dave Theiss, (UMC '79) treat clinical cases and see to the health requirements of approximately 5000 animals at the event.

Dr. Hertzog's veterinary clinic is an integral part of the Lee's Summit community. Dr. Venton Goodnight (UMC '54) serves as the clinic's small animal practitioner while Dr. Hertzog and Dr. Theiss handle the large animal operations. Often, University of Missouri veterinary students spend free block sessions studying at the clinic. As Dr. Hertzog says,

"Veterinary medicine comes first."

But Dr. Hertzog has found that after establishing himself as a quality veterinarian in the community, he soon became a community leader as well. He is now serving a second four year term as a county court judge in the tenth district of Jackson County. Dr. Hertzog has also been the past president of the Lee's Summit R-7 District Advisory Board, is a charter member of the Lee's Summit Rotary Club, a deacon of the Lee's Summit First Baptist Church, a member of the UMC Extension Council, and the past president of the Kansas City Veterinary Medical Association.

Then to add further spice to his life, Dr. Hertzog has been actively involved in the Missouri Veterinary Medical Association. In 1969 he served as Vice-President of the Association, in 1970 he was President-Elect, and President in 1971. He was a member of the Missouri Veterinary Medical Foundation Board in 1975-76, served on the Missouri Veterinary Board from 1973-81 and as its Chairman in 1980-81, and he is past President of the Missouri Veterinary Medical Alumni Association. In 1973 the MVMA honored Dr. Hertzog as the "Veterinarian of the Year" for his many contributions. Dr. Hertzog finds particular satisfaction in watching the growth of the state organization. He says that veterinarians who don't take an active role in the association, "don't know what they're missing".

Dr. Hertzog shares his variety-filled life with his wife, Betty, and their five children. His brother, Jim, is a 1959 alumni of the UMC College of Veterinary Medicine and has a practice in Arkansas.

### cover story

Don Ogawa (VM3) and Teresa Rooney (VM3) position an animal for a radiographic examination. Many referring veterinarians utilize the radiology service provided at the College for their patients.—See the article on the radiology service on page 4 of this publication.

## Grateful Client Provides For Veterinary College In Will

A very special thank you from a grateful client has provided the College of Veterinary Medicine with almost \$800,000 in funds. Mrs. Olive Gilbreath McLorn, pleased with the kindness and professional attention that her Persian-mix cat received at the Teaching Hospital, named the Veterinary College as a major beneficiary in her will.

Mrs. McLorn, a world traveler and author, passed away July 16, 1981 leaving a total estate of approximately \$2 million. Due to the complexity of the will, final distribution was delayed until October 1983.

The will requested that the College utilize half of this money for the Small Animal Clinic "for the purchase of major items of equipment, for development of special areas, renovation, research, etc." The other funds are designated "for scholarships or awards for training of students preparing for the general practice of Veterinary Medicine."

Additional areas within the University of Missouri also received a portion of Mrs. McLorn's estate: 1/20 went to the Friends of the Library, 4/20 to the Museum of Art and Archaeology, 5/20 to the Department of Entomology in the College of Agriculture.

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## Alumnist Dies

Dr. Leeland Holt, Class of 1955, suffered a fatal accident at his home on October 8, 1983. Dr. Holt shared a veterinary practice in Granite City, Illinois with his son, Dr. Tim Holt, Class of 1981. A memorial fund has been developed at the College in Dr. Holt's name. Anyone interested in contributing should contact Dr. Niemeyer.

# In Your College

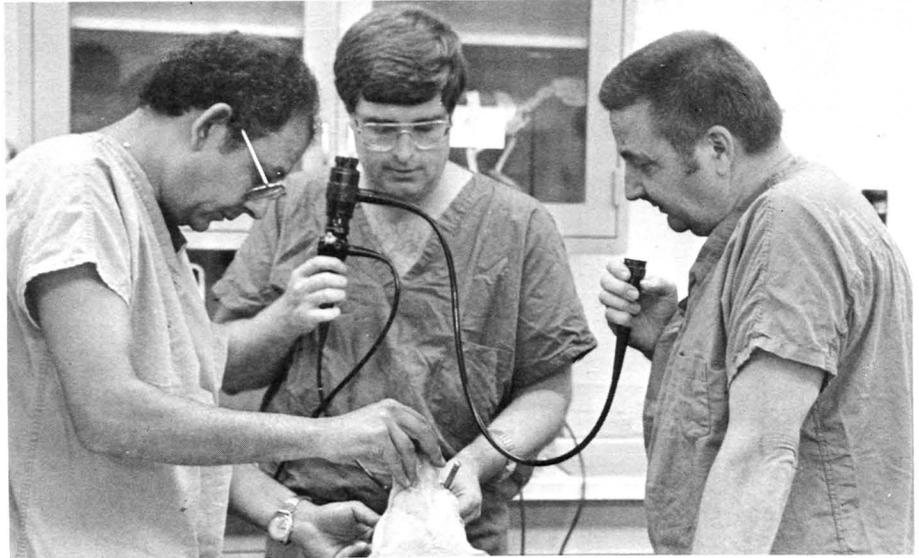
## A Urethrocolostomy

"Lucy", a nine year old spayed female beagle-mix, was referred to the Teaching Hospital in October 1983. The presenting complaint was stranguria and a hard palpable mass at the neck of the urinary bladder. Double contrast cystography, positive contrast cystography, and positive urethrography revealed an extraluminal mass at the neck of the bladder partially occluding the urethra. Dr. Brent Jones and Rosemary Branson (VM3) performed a urethroscopy. Results from a brush cytology and a punch biopsy taken during the procedure revealed a carcinoma of unknown type. ECG, CBC, and blood chemistries were normal, but urinalysis showed clumps of transitional cell carcinoma.

Dr. M. J. Bojrab, Dr. Charles Jones and Mark Parchman (VM4) performed an exploratory laparotomy to determine the extent and type of the tumor. During surgery it was discovered that the tumor involved the entrances of the ureters and extended distally down the urethra. It was necessary to perform a cystectomy and a urethrocolostomy (re-routing the ureters into the descending colon). The bladder was sent to histopathology. The diagnosis was transitional cell carcinoma.

"Lucy" did well during the surgery. Post-operatively, however, she experienced diarrhea, vomiting and an azotemia. She was treated with IV lactated ringers solution, lasix, ampicillin and darbazine. Within four days her laboratory results had improved and her vomiting ceased. "Lucy" was then placed on kaopectate/metamucil gruel and dry dog food to firm her stools. She was discharged with careful instructions to the clients about feeding practices and she was sent home on antibiotics.

Potential problems involved with this surgery included persistent diarrhea, elevated BUN due to colonic absorption, and an ascending renal infection. To control the diarrhea, "Lucy" may have to be on metamucil and possibly kaopectate for life. To control renal infections, her creatinine levels should be monitored and she may require long-term antibiotic treatment.



Dr. Brent Jones (center) explains endoscopy techniques to participants at the Endoscopy Workshop. Don Connor Photo

## Spreading the Word About Endoscopy

The science and the art of endoscopy is gaining popularity within the veterinary profession. Dr. Brent D. Jones, Assistant Professor of Small Animal Medicine at the College is one of the pioneers in this new field and one of its strongest advocates.

Dr. Jones began the initial work on the use of the endoscope in veterinary medicine while he was at the Animal Medical Center in New York City in 1973. He brought the knowledge and his appreciation for the endoscope with him to the University of Missouri when he joined the faculty in 1975.

The versatile endoscope is a complex instrument equipped with a system of lenses which allows the interior of the stomach, the lungs, or almost any bodily cavity to be examined, biopsied, or treated with minimal use of anesthesia. The scope is often able to eliminate the stress and expense of surgery and alternate diagnostic procedures. Many optical companies are beginning to produce scopes for veterinary use, and, as the instrument becomes more popular, it will become more affordable and practical to veterinarians.

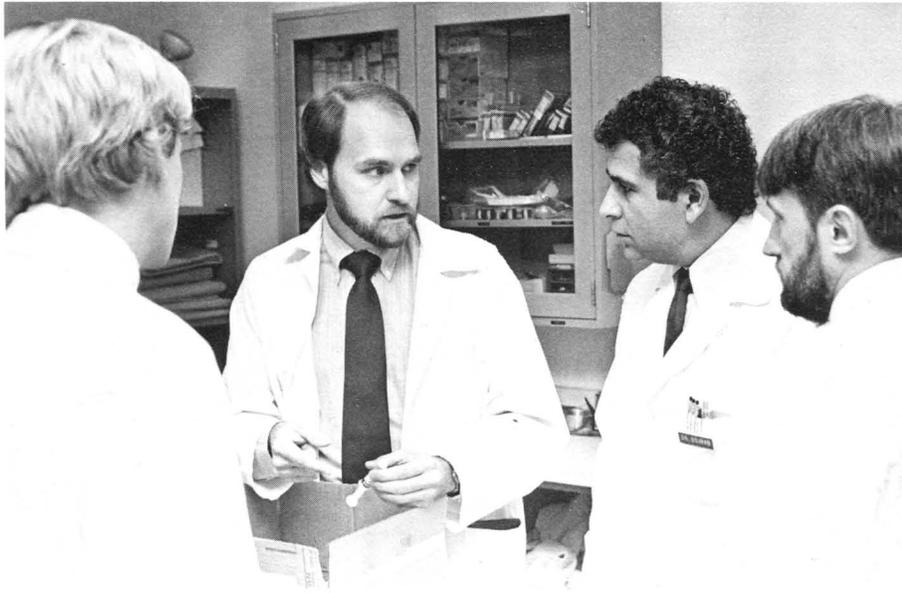
As the usage of the equipment grows, the need for a practical, knowledgeable seminar on the subject of endoscopy grows with it. On November 3-5, 1983 Dr. Jones offered his annual "Small

Animal Endoscopy Workshop" at the College sponsored by the Continuing Education and Extension Office. Dr. Colin Barrows was the co-instructor of the workshop. Practical lectures were presented on the operation, utilization, and advantages of owning an endoscope and laparoscope. Then laboratory sessions were held so that the veterinarian could have "hands-on" experience with the equipment.

Veterinary practitioners attended the annual course from all areas of the country as well as from Canada, England, Switzerland, and West Germany, and the reviews are always outstanding. The class numbers are intentionally kept small so that each veterinarian present can be given individualized attention.

Dr. Jones also travels extensively delivering seminars on the subject of endoscopy. He says that the number of veterinarians attending his lectures has greatly increased within the last five years, and, of course, UMC veterinary students have an opportunity to learn endoscope techniques in their educational program so the news is traveling faster. Dr. Jones says that, "Endoscopy is really becoming a big thing in veterinary medicine in a short period of time" and your College is in the foreground of its development.

# Your College At Work For You



Dr. Mark Tholen (2nd from left) explains the techniques of veterinary dentistry to Dr. M.J. Bojrab (3rd from left), Dr. James Tomlinson (right) and Dr. Rodney Straw (left).

## Specialized Veterinary Dentistry

The College of Veterinary Medicine is going into the field of specialized veterinary dentistry thanks to donations from the Henry Schein Company and the guidance of Mark Tholen, D.D.S.

The Henry Schein Company donated specialized veterinary dental equipment to the Department of Veterinary Medicine and Surgery. Then, to provide more than adequate instruction on the use of the equipment, the Company sponsored three days of seminars, laboratory sessions, and clinical experience for the small animal surgery section, supervised by Dr. Tholen. Dr. Tholen is the author of *Concepts in Veterinary Dentistry* and the inventor of the Henry Schein line of dental instruments.

Dr. Tholen graduated from the University of Texas Dental School. In 1976 he began to practice dentistry on human patients. However, he soon found that veterinarians were contacting him to assist with dental care on their animal patients. By 1977 he had identified such a need within the veterinary profession for advancements in dentistry that he decided to drop the human end of his practice entirely and to specialize in veterinary dentistry. He now has referral practices in San Antonio, Texas and in New York City, and he travels extensively throughout the country to meet with and assist veterinarians and

their patients.

Dr. Tholen finds that the awareness is increasing among the veterinary community and their clientele for the need of quality dental care, and he found the atmosphere at the veterinary college to be a good example of this. During his visit patients were seen for root canal work, placement of braces, repair of damaged teeth, tooth extractions, and the routine cleaning. In fact, Dr. Tholen said that he had never seen so much dental work in a three day period, and this included the consultant work he has done at Animal Medical Center in New York City.

Preventative dental care for patients was also emphasized by Dr. Tholen. He strongly recommended that clients be instructed on the proper way to brush their pet's teeth. He said that many owners become discouraged and give up too soon. He advised that the owner work patiently with their pet so that they will adjust first to having their mouth touched, then to a washcloth on the teeth and then, finally, to a soft toothbrush. He warned that it might take months for the animal to accept the procedure, but that the brushing was important for the pet's health. Dr. Tholen also suggested that the veterinarian should bring "a quality of human-ness to their animal care" so that owners can

## New Surgical Technique

Dr. John Robertson, Assistant Professor of Small Animal Surgery, has developed a technique for the repair of cleft palates and traumatic oronasal fistulas in the dog. Using a cancellous bone graft from the humerus, Dr. Robertson packs the defect and uses a thin layer of alpha cyanoacrylate (superglue) to cover the graft. There is a very low incidence of breakdowns with this procedure, and there is bone regeneration evident after the graft is in place.

## Benign Endochondroma

A four year old Malamute-mix was referred to the College for pain and disuse atrophy in the right front leg that had persisted for 7 weeks. On examination Dr. John Robertson and Carol Robertson (VM3) determined that the dog was painful in the cervical area as well. Based on clinical signs, a differential diagnosis was made of a disc protrusion or a tumor in the cervical region.

Radiographs were taken to reveal an enlargement in the foramen between cervical vertebrae 6-7. A myelogram then demonstrated a right lateral mass in the C6-7 area.

A dorsal decompression was performed. A hard cartilaginous mass (1½ x 2 cm.) was found originating from the disk. The spinal cord was displaced by the mass and the nerve root was compressed but there was no damage to the nerve. Histopathology reported the mass to be a benign endochondroma. The dog recovered well from the surgery and was using its leg 5 days post-surgery.

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empathize with their pet's needs.

Dr. Tholen will return to the College from time to time to evaluate the progress. But, after watching the small animal surgeons at work and after the exhausting three days of dental cases, cases, and more cases, he has given the College his blessings, and the dental program is now officially underway.

For further information about the dental program at the College, call 882-7821.

# Radiology Service Strives for Excellence

In the largest of the radiology room a contrast media is being injected into the jugular vein of an anesthetized dog. A non-selective angiocardioqram is being performed. The rapid film changer is in place. The radiologist, anesthesiologist, and students all work as a well-orchestrated team to achieve their common goal; take the best quality radiographs quickly (it takes only 2-3 seconds for the contrast media to reach the right side of the heart) and with great care to their patient.

Next door, in the central radiology room, an anesthetized patient is being carefully positioned for a pelvic examination which will later be sent to the Orthopedic Foundation for Animals (O.F.A.) for evaluation.

Pre-op films of a mandibular fracture are being taken in the smaller radiology room. The surgeons are waiting for the study to be complete.

The radiologists are busy supervising the work, determining if other views are required in the studies, and giving preliminary but accurate diagnosis of the cases.

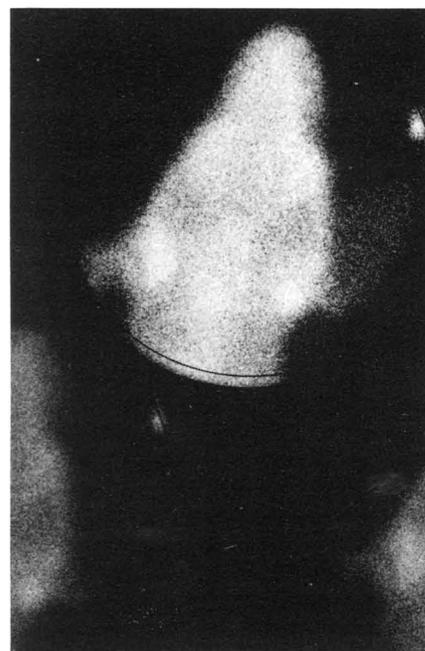
A small animal surgery student locates one of the radiologist to ask when a dog is scheduled for a myelogram. It is pre-anesthetized and ready when the radiology room is available. The student is told that the myelogram procedure is next. A nuclear medicine scan on a german shepherd with a suspected brain tumor is scheduled at 12:30 p.m.; the radioisotope has already been injected. Then radiation therapy on a poodle mix with a mast cell tumor will follow in the early afternoon. By the day's end, all of the radiographs will be carefully and completely studied and reports made over the phone to the referring veterinarians and, in person, to clinicians and students at the College.

The three board certified radiologists at the College; Dr. E. Aronson, Dr. L. Corwin and Dr. J. Lattimer, and the one radiology resident, Dr. R. McKnight, are kept incredibly busy. The specialists coordinate their efforts to provide a quality radiology service for the College and for the State. As Dr. Lattimer says, "Radiology is not a sideline with us. We read films and prepare studies every day, all day, and we offer experience and expertise to referral clinicians."

Many veterinarians in the state already take advantage of this excellent referral service. Daily films arrive from across the state for diagnosis. The radiologists telephone the referring veterinarian with a report within 24 hours of a film's receipt at the College and a written report follows. Not only will the radiologists interpret films, but, if requested, they can also offer technical advice on how to improve the quality of films, and how to get the most out of the equipment the veterinarian already has available. However, veterinarians refer patients to the radiology service most frequently for the special procedures and radiation therapy which it can provide.

In the fall of 1980, the facilities of the radiology service were modernized. The service now offers a catheterization laboratory with the ability to diagnose brain tumors, cardiac abnormalities, abdominal tumors, and portal-caval shunts. Dr. Aronson has a special interest in cardiac disorders, and is interested in acquainting veterinarians with a rapid film changer that can be used in their own practices. The rapid film changers used at the College have the capability of taking six films per second. Cine-angiographic equipment is also available to allow the evaluation of structures and functions that move at high speed (such as heart valves and peristaltic waves). Up to eighty frames can be taken per second with this equipment. In addition, there is the capability of videotaping fluoroscopy procedures to allow dynamic studies to be recorded and evaluated thoroughly.

The nuclear medicine scans are Dr. Corwin's specialty. The radioisotopes are injected and used as tracers for physiological abnormalities. A gamma camera is used to take pictures of lesions detected in this way. If more information is necessary to diagnose the case, then computerized nuclear medicine facilities at the Veteran's Administration Hospital can be utilized. The C-T scanner at the University Medical Center is available for use in unusual cases where no other diagnostic procedure will safely establish a diagnosis. Because of limited access and very high costs (\$400.00 per hour), use of this facility is restricted to special patients.



*A nuclear medicine scan of a dog with a possible tumor. The radioisotope used in this case was Technetium 99m.*

The techniques of radiation therapy at the College are highly advanced and specialized. The facilities for cobalt therapy are unique for this region of the country. Dr. Lattimer has special interest in the techniques of radiation therapy. He says that treatment is possible on a wide range of tumors and conditions. Nasal neoplasms, mast cell tumors, perianal tumors, and reoccurring hemangiopericytomas are a few examples of tumors which have been successfully treated with radiation. And there has been considerable success in the treatment of lick granulomas and eosinophilic granulomas.

In the future, the College hopes to obtain ultrasonographic facilities. Dr. Lattimer did some initial work on the utilization and techniques of ultrasound during his residency at Colorado State University and he says that the instrumentation is invaluable for the diagnosis of a wide variety of diseases including that of the prostate and liver, studies of the heart, and guided biopsies of solid organs and tissues. Ultrasound equipment would be a real asset to the College and to the referring clinicians.

For further information on the capabilities of the radiology service, call 314/882-7821.

# Pemphigus Complex

Bob Walters (VM4)

Small Animal Medicine Section

Pemphigus complex is a group of auto-immune skin disorders which characteristically produce lesions intraepidermally. Histologically, the group is characterized by acantholysis and cleft formation. With direct immunofluorescence studies of the skin lesions, immunoglobulin deposits are detectable, also intraepidermally. The four diseases comprising the complex are Pemphigus vulgaris (PV) and its variant Pemphigus vegetans (PVeg) which tend to act suprabasilar, and Pemphigus foliaceus (PF) and its variant Pemphigus erythematosus (PE) which tend to act subcorneally.

## I. Epidermal anatomy

- A. Layers of the epidermis outermost to innermost.

Stratum corneum

Stratum lucidum (found only in non-hairy regions)

Stratum granulosum (may or not be present)

Stratum spinosum (Prickle cell layer and Stratum malpighii)

Stratum basale (Stratum germinativum)

- B. Dogs and cats have an epidermal cell thickness that is less than that of man which probably is the reason bullae are seen much less frequently in dogs and cats than in man.
- C. In regions where there is a heavy coat of hair, epidermis is generally thinner. In non-hairy skin such as the mucocutaneous junctions, skin tends to be thicker. Planum nasale tends to have a thin St. corneum of nucleated cells and lacks a St. lucidum and St. granulosum.
- D. Cells of the epidermis are held together by intercellular cement substance.

## II. Histopathology for Pemphigus Diagnosis.

- A. Best opportunity for histopathological diagnosis is obtained from biopsies of whole bullae or freshly ruptured bullae.
- B. Fresh lesions are most desirable as old lesions may be ex-



coriated or secondarily infected, leading to erroneous results.

- C. If local anesthetic is used, it must go subcutaneous to avoid artifact effect intraepidermally.
- D. Multiple biopsies improve the chances for diagnosis.
- E. Preservation of the biopsy - neutral buffered formalin. Michel's fixative gives *poor* architectural preservation.
- F. Classical lesions are diagnostic; negative findings is not a rule-out.

## III. Immunopathological Diagnosis

### A. Direct immunofluorescence.

1. General - antigen plus fluorescent-labelled antibody producing fluorescence indicates the presence of antigen.
2. Pemphigus - antibody, mainly IgG but IgA has also been documented, is the antigen. Anti-globulin, anti-IgG primarily, is the fluorescent-labelled antibody.
3. Sampling and testing. Biopsy of the skin lesion as on histopath biopsying. Transportation and preservation: 1) Formalin fixative destroys the antigenicity of the immunoglobulin. 2) Quick freezing in isopentane, cooling in solid carbon dioxide

or liquid nitrogen acceptable. 3) Preservation may be obtained up to one week in Michel's fixative. The antibody is fixed *in vivo* and can be demonstrated by the direct immunofluorescent testing.

4. Positive is diagnostic; negative is not a ruleout. Therefore, it is best to use both histopathology and immunopathology in diagnosing Pemphigus.

### B. Indirect Fluorescent Antibody Test.

1. General - Known antigen plus suspect serum (antibody) plus fluorescent-labelled antiglobulin producing fluorescence indicates the presence of antibody.
2. Pemphigus - Substrate antigen classically buccal mucosa and canine or monkey esophagus. Suspect serum is patient's serum. Fluorescent-labelled antiglobulin is primarily anti-IgG.
3. In man, the level of circulating serum antibody is correlated with the progression of the disease and extent and severity of the lesions.
4. In dogs, the IFA is equivocal at best. Negative results are common and

# Pemphigus

may be due to either: a) Antibody may all be bound *in vivo* to it's substrate; or b) Circulating autoantibodies may be present but in quantities lower than can be detected by the sensitivity of the test.

## IV. Pathogenesis

- A. Autoimmunity: the direction of a body's antibodies or immune-competent lymphocytes against it's own tissues.
- B. Complement is ordinarily associated with antibody in autoimmune disease but in Pemphigus, antibody may be pathogenic on it's own.
- C. Development of the autoimmune response: Theories only, no definite answer.
  1. Antigenic alteration of cellular elements such that immune response is elicited and then cross reacts with unaltered tissue.
  2. Autoimmune responses may be normally present but are kept under control by the action of suppressor T-cells. With an abnormality of suppressor T-cell function, the autoimmune response goes unchecked.
- D. Other considerations in the development of autoantibodies to the intercellular cement substance.
  1. Burn patients often develop a bullous disease suggestive of PV, with demonstrable autoantibodies reactive with the intercellular cement substance.
  2. In man, patients with Lydel's toxic necrolysis, extensive burns, and myasthenia gravis may show serum autoantibodies which react with intercellular bridges of squamous cells. Immunofluorescent staining reactions are usually weak however.

## V. *Pemphigus vulgaris* (PV)

- A. Presentation: PV has a predilection for the mucocutaneous junctions. Oral mucosal involvement is common. Nail beds may be affected. Bullae and erosions involving skin and mucous membranes. Footpads may be ulcerated and sloughing. Tongue and nares eroded, reddened, and inflamed. May see scattered ulcerations involving scrotum and back. Acute form: Patient often systemically ill. Chronic form: often unaffected otherwise.
- B. Histopathology: Suprabasilar cleft separating S. spinosum from S. basale. Cells of S. spinosum characterized by round, dark staining cells which are separated from one another (acantholytic). If a bullae is present, the cells may be found floating free without association one for another.
- C. Direct immunofluorescence: Epidermal intercellular deposition of IgG. Presumably against intercellular cement substance. Some evidence is suggested that the IgG may be against the epidermal cell wall antigens. It has been noted that in some lesions deposition of IgG is dorsal and ventral to the cleft, in areas of the cells and not throughout the cleft where there should be some intercellular cement substance and thus antigenic stimulation.

## VI. Reports of PV without mucosal or mucocutaneous involvement (2 reports)

- A. This occurrence is rare in man and only two reports have been made in dogs (1982).
- B. Nasal:
  1. Presentation - ulcerative, oozing, alopecia on bridge of nose. Small, focal areas of leukoderma present at the junction of the ulcer and planum nasale.
  2. Histopath: Suprabasilar cleft and acantholysis.
  3. Direct immunofluorescence: Positive for both IgG and IgA in intercellular spaces of the epidermis.

- C. Nail bed involvement only: Histopathological diagnosis only. No immunofluorescence performed.

## VII. *Pemphigus foliaceus* (PF)

- A. Presentation: No predilection for mucocutaneous junctions or oral mucosa and these areas are usually not involved. Often, the lesions start around the head and ears, frequently generalizing. On occasion, may start at mucocutaneous junction. Crusty, scaly eruptions, alopecia often noted. Bulla are noticed less frequently than with PV, probably due to the even more superficial location of the lesion (subcorneally). Generalized exfoliative dermatitis, blistering, erosions, epidermal collarettes, erythema, oozing, crusting. Occasional pruritis pain or both have been described.
- B. Histopathology: Classically, subcorneal bulla covered by thin keratotic scale with floor formed by S. granulosum. Cells of the S. granulosum demonstrate acantholysis. Inflammatory cells present are primarily neutrophils.
- C. Direct immunofluorescence: IgG deposition demonstrated in intercellular spaces of the epidermis being most pronounced at edges of bulla.
- D. Why the autoantibodies produce lesions in different areas of the epidermis (PF-subcorneal, PV-suprabasilar) is unknown. It is suggested that antigenicity of intercellular cement substance may vary within the different layers of the epidermis.

## VIII. *Pemphigus erythematosus* (PE) - Variant of PF

- A. Presentation: Erythema, alopecia, erosion, ulcerations, epidermal collarettes, leukoderma, oozing, scaling, crusting, and blisters of the nose, face, and ears. Pruritis is variable. Does not tend to generalize as PF does.
- B. Histopathology: Subcorneal blisters; acantholysis.

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# Pemphigus

From Page 7

- C. Direct immunofluorescence: Immunoglobulin, with or without complement, deposited in the intercellular spaces. Immunoglobulin also often demonstrable at the basement membrane zone. Positive ANA also occurs. (30% of cases in man are ANA positive.)
  - D. PE appears to be a crossover link from Pemphigus to Systemic Lupus Erythematosus (Senear-Usher syndrome in man).
  - E. PE differentiated from PF on basis of immunoglobulin deposition at the basement membrane zone and positive ANA.
- IX. *Pemphigus vegetans* (PVeg) Variant of *Pemphigus vulgaris* (PV)
- A. Presentation: Erosions and ulcerations noted but primary lesion observed is a crusting, alopecic, exudative, erythematous area. The lesions are usually verrucous vegetans.
  - B. Histopathology: Suprabasilar cleft formation and acantholysis. Due to the nature of the lesion, may see thickened epidermis covered by hyperkeratotic, parakeratotic scale. Intraepidermal microabscesses have been observed. Eosinophils have been reported as the most common inflammatory cell present.
  - C. Direct immunofluorescence: IgG deposits intraepidermally. In one case, this was the only distinction that could be made between PVeg and vegetative pyoderma.
  - D. Two types of PVeg are described. The vegetative lesion is the same.
    - 1. Neuman type - Primary lesion is the formation of bullae as in PV, which denudes areas of skin and heals with verrucous vegetans.
    - 2. Hallopeau type - Primary lesion is pustules but the healing response is still one of proliferation.
- X. *Pemphigus Complex in the Feline*
- A. PF, PE, and PV documented.

- B. Clinically, PF and PE were characterized by facial exfoliative dermatitis especially of the nose, periorbitally, and of the pinna; can be generalized though. Oral lesions were absent. PV of the feline seems to be an oral, mucocutaneous disease especially of the gums, lips, hard palate, and nasal philtrum. Bullae seem to be characteristically absent in the cat. Historically, it may present as an unresponsive stomatitis.
- C. Histopathology:
  - 1. PF and PE: Classical subcorneal blisters; acantholysis.
  - 2. PV: Chronic ulcerative stomatitis, cheilitis with associated lichenoid dermatitis. Impression smears may demonstrate numerous acantholytic epidermal cells as an aid in diagnosis.
- D. Immunopathology:
  - 1. Direct immunofluorescence: Consistently positive.
  - 2. Indirect fluorescent antibody: Consistently negative.
- E. ANA - one cat positive for ANA and also had superepidermal (basement membrane zone) immunoglobulin deposition. PE.
- F. No reports of Pemphigus vegetans in the cat.

## XI. Treatment

- A. Corticosteroids - usually initial drug of choice. Initial dosage should be high. Once under control may be able to lower the dosage. Often difficult to get the animal on to alternate day therapy. Problems encountered are secondary infections associated with the immunosuppressive effects of the steroids and creation of adrenal imbalances (iatrogenic Cushing's and adrenal cortical atrophy).
- B. Alkylating agents:
  - 1. Cyclophosphamide: Also has immunosuppressive properties. Primary problem is the occurrence of hemorrhagic cystitis and

association of granulomatous changes in the bladder. Concomitant use of steroids as well as forced fluid therapy are reported to reduce the incidence of hemorrhagic cystitis. Periodic diuresis with Lasix may also help.

- 2. Chlorambucil: Has been used as an alternative to cyclophosphamide. Primary problem is gastrointestinal disturbances.
- C. Antimetabolites:
- 1. Methotrexate: Antifolate acid. Problems associated with the drug are bone marrow depression and gastrointestinal disturbances. Specific antidote: Folinic acid.
  - 2. Azathioprine: Three to five week lag time reported. May be indicated in early cases alone. Most commonly used in combination with steroids. Primary problems are bone marrow suppression, skin eruptions, and hepatic dysfunction.
- D. Chrysotherapy: Gold salt therapy.
- 1. Actions: Increase stability of collagen, decrease migration and phagocytic activity of macrophages and neutrophils, inactivate complement, inhibit prostaglandin synthesis and epidermal enzymes, suppression of immunoglobulin synthesis.
  - 2. Toxic side effects: In man, cutaneous reactions are the most common, dermatitis, pruritis, erythema, exfoliation. Second most common problem is stomatitis. Also has been associated with nephrotic syndrome, blood dyscrasias, and anaphylactic effects. Anaphylactic reaction has been primarily with gold sodium thiomalate. In Vet Med, auro-

Continued on Page 9

## Team of Scientists Study Fescue Toxicity

Pregnant mares grazing on tall fescue pastures are susceptible to problems of agalactia, thickened placentas, and foal deaths. A team of University of Missouri researchers: Dr. Wayne Loch, Assistant Professor in Animal Science; Dr. V. K. "Seshu" Ganjam, Professor of Veterinary Endocrinology; Dr. Harold Garner, Professor of Veterinary Medicine and Surgery; and Dr. Harold Carlson of the Veterans Administration Hospital, are studying this syndrome in mares and working to alleviate it.

It has been demonstrated that a fungus called *Epichloe typhina*, found in some fescue seed, can produce a toxin that affects these mares. The hypothesis is that this fungus has an ergot-like activity that depresses prolactin and, thus, no milk production. To prove this, fungus was injected into rats and their prolactin levels did, indeed, decrease.

Dr. Loch has now been taking blood samples from mares pastured on tall fescue. Dr. Ganjam has been running cortisol levels on these samples and some interesting new data has come to light. It has been determined that the cortisol levels in these mares remains stable. However, non-affected animals, including humans show an increase in cortisol prior to parturition. This information could provide a possible means of drug therapy for these mares in the future. At this time, cortisol levels are being measured in normal mares to serve as controls.

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## Pemphigus

thioglucoase is the usual gold salt used. Toxicity in dogs is not well documented yet.

- E. Combination therapy of anti-metabolite or alkylating agent with steroid allows use of decreased dosage of steroid and has shown synergism.

## 59th Annual Conference A Success



Don Connor Photo

*Peter Boyt (VM4) mans the College booth at the Annual Conference. Veterinarians and their spouses talked to veterinary students and faculty at the booth and gathered information about the College.*

Dear Veterinarian:

The 59th Annual Conference has come and gone. What a success it was! This year we moved the major meeting portions from the Ramada Inn to the Hearnes Multipurpose Building. Hearnes facility is light, airy, has plenty of room and offered us better service than had been extended by Ramada Inn in previous years. Indeed, we feel that the conference was a success. Highlights of the conference were:

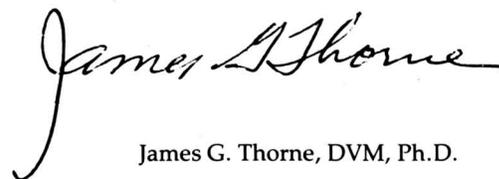
1. Speakers were very competent and presented interesting and new information, according to the evaluations we received. We are currently in negotiations with nationally known speakers to present programs designed to meet your needs for the 1984 Annual Conference.
2. For the first time in several years exhibitors were in attendance at the 59th Annual Conference. They exhibited new products and product information. We plan to repeat this next year. Exhibitors support our program and we appreciate their financial contributions to the program.
3. The Monday noon meal, supplied by exhibitors, was a most welcomed hit with attendees. Many commented that this was the best meal that they had had

at a conference in many years. Indeed, the barbequed roast beef prepared by the Food Science personnel and served by the Student Union was outstanding. This meal is on for next year.

4. Two cash drawings for \$50.00 each were awarded to Dr. Wesley Wertz of St. Charles, Mo. and Dr. Stanley Wolfe of Strafford, Mo. We plan to have the drawing again in 1984.

Make plans now to attend the 1984 Conference to be held at the Hearnes Building. We plan to repeat the cash drawing and the barbequed luncheon on Monday noon, furnished by the exhibitors. Speakers of national renown will provide you with plenty of information to use in your practice or profession. Don't miss the 1984 Annual Conference at your College of Veterinary Medicine.

Sincerely,



James G. Thorne, DVM, Ph.D.

# Faculty Accomplishments

## Faculty Publish

The following have been published by members of your College:

Boever, W. J. and Wallach, J. D.: *Diseases of Exotic Animals, Medical and Surgical Management*, W. B. Saunders Company, 1983.

Kirkland, K. D.; Fales, W. H.; Blanchard, T. L.; Youngquist, R. S.; Hurtgen, J. P.: "The *In Vitro* Effects of EDTA-TRIS, EDTA-TRIS-LYSOZYME, and Antimicrobial Agents on Equine Genital Isolants of *Pseudomonas aeruginosa*, *Theriogenology*, Vol. 20, #3, 1983. (This was presented by K. D. Kirkland, VM4, at Beecham Phi Zeta Research Day on April 8, 1982 at the College.)

Miller, R. E. and Boever, W. J.: "Cryptococcus in a Lion-Tailed Macaque", *Journal of Zoo Animal Medicine*, 1983.

Schlink, G. T. and Johnson, G. S.: "A Sensitive Autoradiographic Procedure for Factor VIII-Related Antigen In Canine Plasma", *Veterinary Clinical Pathology*, Vol. XII, #3: 21-27, 1983.

St. Omer, V.: "Treatment of Acetaminophen Toxicosis in Cats", *Modern Veterinary Practice*, vol. 64, #10: 815-818, 1983.

Steffen, E. K. and Wagner, J.E.: "Salmonella enteritidis serotype Amsterdam in a Commercial Rat Colony", *Laboratory Animal Science*, Vol. 33, #5: 454-456, 1983.

Olson, L. D. and Fales, W. H.: "Comparison of Stained Smears and Culturing for Identification of *Treponema hyodysenteriae*", *Journal of Clinical Microbiology*, Vol. 18, #4: 950-955, 1983.

Miller, R. E., Trampel, D. W., Desser, S. L., Boever, W. J.: "Leucocytozoan simondi Infection in European and American Eiders", *J. Am. Vet. Med. Assoc.*, Vol. 183, #11: 1241-1244, 1983.

Miller, R. E., Albert, S. G., Boever, W. J.: "Hypothyroidism in a Chimpanzee", *J. Am. Vet. Med. Assoc.*, Vol. 183, #11: 1326-1328, 1983.

Levy, D. H., Yamamoto, R., Bickford, A. A.: "The Pathogenesis of Infectious Bursal Disease: Serologic, Histopathologic, and Clinical Chemical Observations", *Avian Diseases*, Vol. 27, #4: 1060-1085, 1983.



The Distinguished Service Award winners: Dr. W. H. Eyestone (left), Dr. L. D. Kintner (center), and Dr. C. J. Bierschwal (right) stand beside their portraits which now hang in the College library.

## Three Receive Distinguished Service Award

The Distinguished Service Award is one of the highest honors the University of Missouri College of Veterinary Medicine bestows on its colleagues. In past years one individual was presented the award annually. However, in 1983, at the 59th Annual Veterinary Conference held at UMC, three outstanding individuals were found to be deserving of this high honor.

Dr. C. J. Bierschwal, Professor in the Department of Veterinary Medicine and Surgery and Diplomate in the College of Theriogenology, was recognized for his outstanding service to veterinary education since joining the faculty in 1951, and for his leadership in establishing clinical veterinary medicine and research programs in the field of theriogenology. Dr. Bierschwal has been the recipient of

other high honors. In 1982, he received the University Alumni Association's Distinguished Faculty Award, twice he was presented the Norden Teaching Award, and in 1970, he received the Faculty-Alumni Award.

Dr. W. H. Eyestone was honored for his administrative duties as Interim Dean of the Veterinary College from March 1981 until December 1982. Dr. Eyestone originally joined the College in 1972 as chairman and professor of Veterinary Pathology Department. He is a diplomate in the American College of Veterinary Pathology. Following his service as Interim Dean, Dr. Eyestone assumed the position of interim associate dean and assistant director of the Agriculture Experimental Station. On August 31st, Dr. Eyestone officially retired from the College and received Professor Emeritus status. However, he will continue the Dean's Office part-time on special projects.

Dr. Loren D. Kintner, Professor of Veterinary Pathology and diplomate in the American College of Veterinary Pathology, has been a dedicated faculty member of the College since 1949. The service award was presented to him for his contributions to the pathology teaching programs and for his diagnostic service work to the veterinarians and people of Missouri. Dr. Kintner has also been the recipient of the Norden Teaching Award in 1966 and 1977 and the AMOCO Good Teaching Award in 1977.

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Mrema, J. E. K., Slavik, M. Davis, J.: "Spirogermanium: A New Drug with Antimalarial Activity Against Chloroquine-Resistant *Plasmodium falciparum*", *International Journal of Clinical Pharmacology, Therapy, and Toxicology*, Vol. 21, #4:167-171, 1983.

Bruyette, D. S. (VM4) and Tomlinson, J. L.: "Canine Cerebral Abscess: A Case Report and Discussion", *Veterinary Medicine/Small Animal Clinician*, Vol. 78, #11:1706-1708, 1983.

## The Dean's Corner



Dear Veterinarian:

We enter the new year with high hopes for the future of your College of Veterinary Medicine. These hopes, while modulated by apprehension about the financial status of the state of Missouri, are enforced by knowledge that the College is doing an essential job and doing it well.

The spirit and activities of the College are a source of a great deal of pride. New faculty are arriving to replace some of those who have left. Efforts are underway to improve communications between referring veterinarians and receiving specialists. Support and encouragement from veterinarians, friends, legislators and the University administration suggest your College will be able to maintain the programs its founders intended.

Applications for admission have gradually declined but we still have an excellent group of applicants. Students are enthusiastic, hard working, dedicated and interested in the wide variety of career choices available in an era when it appears more veterinarians will be contributing in non-practice occupations.

In addition to usual activities, the faculty is occupied with minor reorganizations, curriculum modernization, priority determinations, and long range planning.

Private and corporate gifts received in the annual giving program reached a new high of approximately \$49,000 in 1983. Faculty members expressed their commitment by contributing 33% of this total. The faculty successfully attracted approximately \$2 million in external support for research, teaching, and diagnostic programs last year. Dr. Mar Doering, your Information Specialist, has upgraded dissemination of information about College programs to the public, press, and alumni.

On the recommendation of the campus and system-wide administrations, the Board of Curators and the Coordinating Board of Higher Education, your College is the potential recipient of a budget increase that will permit its survival. Your legislature and Governor will be asked this year to increase the operating budget by \$996,000. If this is granted, some of your expectations and aspirations for your College will be fulfilled. If this key quality request fails, this institution will be in serious financial trouble.

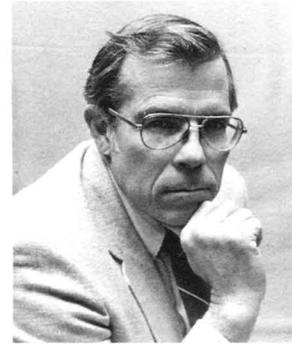
The expertise and facilities of the College are at your disposal. We encourage you to take advantage of reunions, short-courses and faculty consultations. Please call on us if we can assist you in any way.

Best regards.

Sincerely,

Robert F. Kahrs, D.V.M., Ph.D.  
Dean

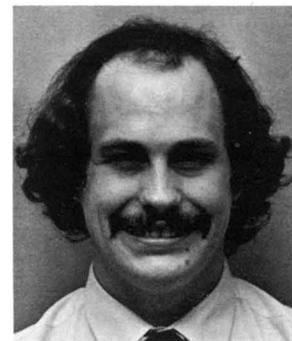
## Dr. Hahn Named To N.I.H. Study Section



Dr. Allen W. Hahn was recently named to the National Institute of Health (N.I.H.) Surgery and Bioengineering Study Section. This study section is a peer review group within the National Heart, Lung, and Blood Institute. Dr. Hahn and other members of the section will review and evaluate research proposals for N.I.H. funding.

Dr. Hahn has his D.V.M. from the University of Missouri and a M.S. and Ph.D. in Bioengineering from Drexel University. He is the Interim Associate Dean of Research and Graduate Studies at your College, Research Investigator and Associate Director of Dalton Research Center at the University of Missouri, and Professor of Veterinary Medicine/Surgery and Bioengineering.

## Dr. Franklin Wins Squibb Grant



Dr. Robert Franklin is the 1983 recipient of the Squibb Animal Health Resident Grant provided by E. R. Squibb and Sons, Inc. Dr. Franklin is a resident in the small animal medicine program. The award will be used to fund Dr. Franklin's research, " 'Euthyroid Sick Syndrome' in Dogs'".

## Datebook

**March 3-4.** "Breeding Soundness Examinations" for veterinarians at the College.

**March 5.** "Liver Disease" for veterinarians at the College.

**March 16.** "Turkey Health Day" for veterinarians and client education at Springfield, Mo.

**March 22.** "Neurology" for veterinarians at the College.

**April 14.** "Canine Care Day" for veterinarians, breeders, and dog enthusiasts at the College.

For further information, contact Marsha Murray in the Continuing Education office at the College, 314/882-7854.

# College Briefs

## Pancreatitis With Complications

A two year old spayed female sheltie named Heidi was referred to the Small Animal Medicine section for symptoms of anorexia, vomiting, and severe depression. On physical exam at the College, Dr. Robert Franklin, resident, found that she was also severely hyperthermic, dehydrated, and had a 2/5 systolic heart murmur. The dog was cooled in a water bath and fluid therapy was initiated. Once Heidi was stable, blood samples and thoracic and abdominal radiographs were taken.

The initial differential diagnosis was pancreatitis, bacterial endocarditis, severe gastric irritation, and intestinal or gastric obstruction. The laboratory tests revealed a normal WBC count with a left shift, elevated BUN, phosphorous, calcium, ALT, and alkaline phosphatase. The amylase was extremely elevated and the lipase was only marginally elevated. Radiographs demonstrated small kidneys and a possible mass at the head of the spleen.

On the sixth day of hospitalization, two blood cultures revealed *Clostridium perfringens*. The bacteremia that was present was thought to be secondary to the pancreatitis since *Clostridium perfringens* can be naturally occurring in the pancreas.

Intravenous antibiotics were begun in the hospital and continued for one week until Heidi was discharged on oral antibiotics. On recheck, the blood cultures were negative and the heart murmur was barely audible.

## Ophthalmologist Appointed

The College has appointed Dr. Cynthia Wheeler Assistant Professor in Ophthalmology.

Dr. Wheeler received her DVM from Michigan State University in 1977. Upon graduation she entered private small animal practice. In 1980, Dr. Wheeler joined the residency program at Colorado State University. At this same time she studied for her MS in comparative ophthalmology under a National Eye Institute grant for research training. Both the residency and masters programs were complete in 1982 at which time Dr. Wheeler returned to private veterinary practice.

Dr. Wheeler has published and presented several papers on canine, feline, and equine ocular abnormalities and treatments.

## Theriogenologist Returns To The College

Dr. William Braun, a diplomate in the American College of Theriogenology, has recently joined the faculty as Associate Professor in the Department of Veterinary Medicine and Surgery. Dr. Braun is a familiar face to many Missouri veterinarians. In 1978-80 he was a resident in the Theriogenology area at the College.

Dr. Braun is a graduate of the University of Illinois where he earned a BSVS in 1975 and a DVM in 1977. He then completed an internship in the Department of Food Animal Medicine and Surgery in Illinois.

For the past three years Dr. Braun has been an Assistant Professor of Veterinary Clinical Science at Louisiana State University.

## Subtotal Prostatectomy

Chronic prostate disease in the dog often necessitates a castration and the possibility of a prostatectomy. Dr. John Robertson, Assistant Professor of Small Animal Surgery, has adapted a human surgical technique for use in dogs suffering from this disease. The technique is easy to perform, does not cause urinary incontinence, and, because castration is not required, future breeding need not be impaired.

Dr. Robertson performs a subtotal prostatectomy. In man the prostatic cap-

sule is very thick so the technique is routinely performed in cases of abscess or cyst formation. However, the dog has a thin capsule that, until this time, made surgery difficult. Dr. Robertson compensated for this species difference by allowing a few millimeters of tissue and the dorsal section of the urethra to remain in place.

Dr. Robertson recently performed this surgery on a ten year old beagle. Three months post-surgery, the dog was producing viable semen.

## Veterinary Medical Review

College of Veterinary Medicine  
and Cooperative Extension Service

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