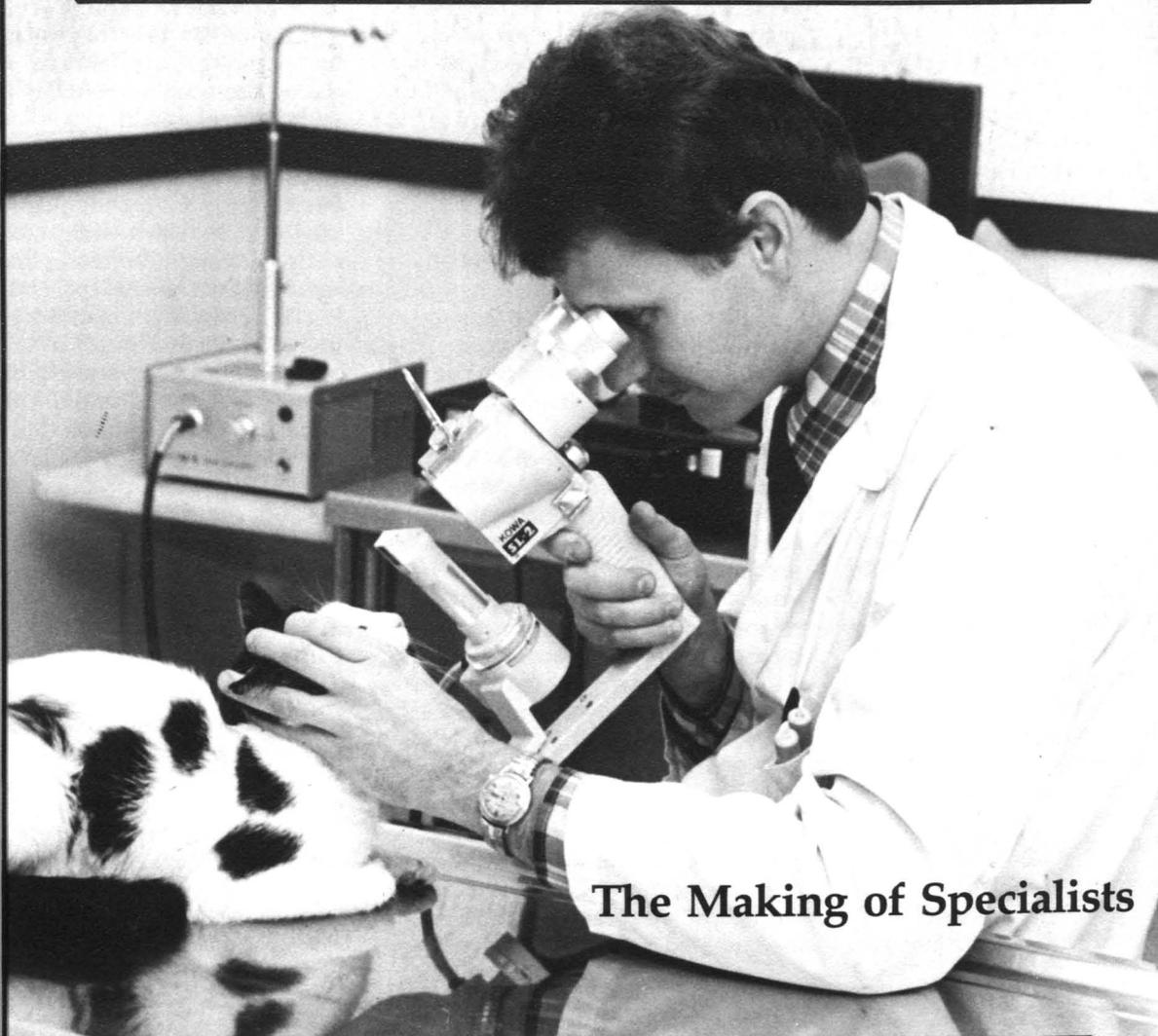


# VETERINARY MEDICAL REVIEW



## **The Making of Specialists**

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

November/December, 1979, No. 115

In this issue. . . Cover Story, p. 6; Teaching Hospital Recognized, p. 3; Milk Progesterone Test, p. 2; Annual Conference, p. 4.

Ophthalmology resident, Dr. Cecil Moore.

# MILK PROGESTERONE TEST

Denis Vaillancourt, D.V.M.  
Dept. Veterinary Medicine & Surgery

## Principles:

In the cow, ovarian secretion of steroids, e.g., estrogens and progesterone, vary to produce a well defined cyclic pattern. These steroids are secreted into the milk from the blood with the same cyclic variations. However, progesterone is fat soluble, and its concentration will vary with the percentage of milk fat which changes from the foremilk to strippings. During a normal estrous cycle, blood and milk progesterone rise from Day 1 (Day 0 is day of ovulation) until Day 8, and maximum levels of progesterone are maintained until Day 17-18, after which it rapidly declines until formation of the next corpus luteum (C.L.). Thus, the progesterone level is at a minimum level between Day 18 and Day 3-4 of the following cycle. (Figure 1).

After conception, the C. L. persists and progesterone concentration remains at a high level beyond the next expected estrus period (Figure 1). However, some uterine pathology might cause similar persistence of the C.L. (Table II). These conditions might eventually be differentiated by examination per rectum.

## Application:

### Early Pregnancy Diagnosis

The milk progesterone test (MPT) was initially developed in England

(1972) for the diagnosis of early pregnancy, and it is routinely used in several European countries. The value of the test has been studied by many investigators including several at the University of Missouri-Columbia. Most of the results have been encouraging; the pregnancy accuracy at 21 days after breeding varied from 75 to 85 percent. If a second sample was collected on Day 27 post-breeding, the accuracy of the test was improved in one study (Table 1). Reasons for inaccuracy and inconsistency might be due to several factors (Table II). These factors reinforce the need for veterinary supervision at a later date.

However, this test is better used in identifying nonpregnant cows. The determination of nonconception appeared to be the most reliable (100%) and important aspect of this assay. The MPT is promising as a management tool to detect post-service anestrus cows, and probably will be added to the routine veterinary reproductive program. With the help of this test, the cow which has not conceived can be examined and treated early. Therefore, MPT should be of a great help to significantly reduce the calving interval in cattle.

### Estrus Detection, Breeding Time, Estrous Cycle

Studies from various parts of the world showed that about 20% of inseminated cows at "supposed" es-

trous were actually in luteal phase, e.g., not in heat. On occasion, this percentage might be even higher in large herds. The MPT offers an excellent way for veterinarians to demonstrate tactfully to farmers or managers their heat detection or breeding time problems. The collection of a sample at the time of insemination and 21 days later should also reduce the numbers of false positive tests by eliminating some of the causes of false positive tests.

Some other uses of the MPT have been suggested for the post-partum cow and repeat-breeder cows. The early detection of cows that have established a normal cycle after calving, as the evaluation of the percentage of noncycling cows in a beef herd, could become useful in management of some herds. The problem of embryonic death or of endocrine disorders can be monitored earlier and more precisely in some cases of repeat-breeder cows. However, these aspects of the MPT need further investigations before extensive uses in the field.

## Procedures:

The use of milk instead of blood samples makes the collecting procedures simpler, more rapid and elim-

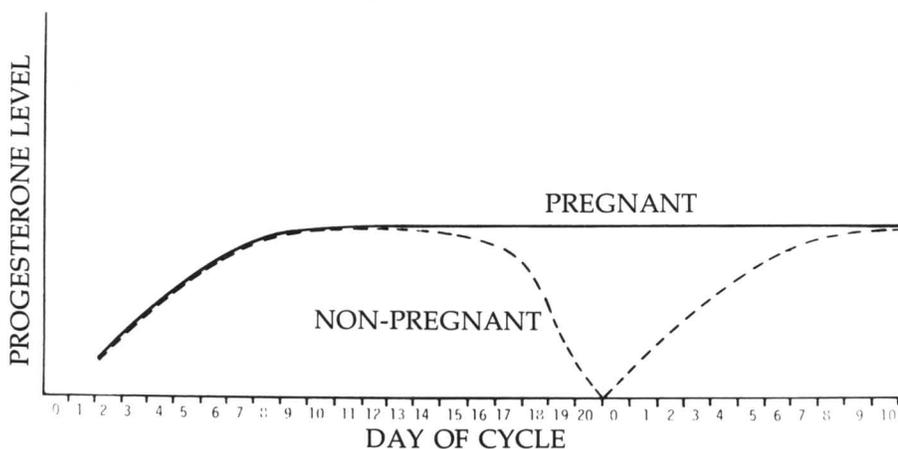


Fig. 1. Progesterone levels in the pregnant and open cow.

TABLE I Milk Progesterone Test - Accuracy

	Gestation Length			
	Day 21-22		Day 27-28	
Diagnosis	p <sup>a</sup>	NP <sup>b</sup>	P	NP
Correct	77%	100%	95%	100%
Incorrect	23%	0%	5%	0%

<sup>a</sup>p = pregnant

<sup>b</sup>NP = non-pregnant

Dr. A. A. Zaid, Ph.D. Thesis, University of Missouri-Columbia, May 1979.

# Teaching Hospital Receives Special Recognition

Efforts Pay Off;

Status Achieved

The College's Teaching Hospital has been designated as a "Member Hospital" of the American Animal Hospital Association (AAHA), a nationwide accrediting group. Recognition was first announced this past summer in a letter to Dr. Charles E. Martin, Director of the Teaching Hospital.

To achieve "Member Hospital" status, the Veterinary College's Teaching Hospital had to meet high standards of diagnostic and clinical services, surgery, radiology, anesthesiology, dentistry, nursing care, emergency service, pharmacy, and record keeping. These standards of patient care and treatment approach those of a human hospital, and as such are the most stringent for veterinary hospitals in the U.S.

Including the College's Teaching Hospital, there are only twelve AAHA Member Hospitals in Missouri.

Efforts had been made since the completion of the new Veterinary



Dean Kenneth D. Weide (right) admires one of the plaques presented to the Teaching Hospital by AAHA. With Dr. Weide are Dr. Charles E. Martin (left), Chairman of the Department of Veterinary Medicine and Surgery, and Dr. Steven G. Stoll (center), Coordinator for the Small Animal area of the Teaching Hospital

Medicine Building in 1977 to achieve "Member Hospital" status. Dean Kenneth D. Weide compared this achievement to the College's gaining full accreditation and the Veterinary Medical Diagnostic Laboratory re-

ceiving recognition as a Full Service Laboratory, both in 1977.

To maintain "Member Hospital" standing, the Teaching Hospital will be evaluated again in 1981 by AAHA personnel.

## Progesterone Test, cont.

inates the need of veterinary assistance. Because of the fat solubility of progesterone, as previously discussed, we can realize the importance of consistency in the collection techniques as well as in the laboratory procedures. For this reason, the requirements for sampling might vary among various laboratories. However, collection of whole milk is the most practical approach.

After collection, the milk samples are preserved either by addition of potassium dichromate, mercuric chloride or chloramphenicol or by immediate freezing. Mailed to the laboratory on the same day, the sample will be defatted, the progesterone extracted and measured by radioimmunoassay. Within 48 hours, results should be determined and sent back. In consideration of the mailing time, results should be known by the sender within six to eight days.

In conclusion, the MPT looks promising as a diagnostic aid for

producers and veterinarians. Its greatest value appears to be the identification of open cows and in heat detection problems. In large dairy herds, breeding at the wrong

TABLE II Factors Responsible for False Positive Milk Progesterone Test

### Physiological:

1. Irregular Estrous Cycle: longer or shorter than normal
2. Early Embryonic Death

### Human

*Breeding at the wrong time*

### Uterine Pathologies:

- Pyometria*
- Fetal maceration*
- Fetal mummification*
- Mucometria*

time or the post-breeding anestrus cow remain the two most important problems of our dairy industry. Unfortunately, veterinary services cannot be obtained all the time at the appropriate moment. Thus, the MPT should help farmers to detect some of their problems earlier. However, the MPT cannot replace veterinary assistance. Pregnancy should be confirmed and differentiated from pathology by examination per rectum. Presently, results of the assay are not available until the non-pregnant cow has ovulated and started the next estrous cycle. Ideally, results of the test should be obtained on the same day, permitting the breeding of open cows immediately. In consideration of these points, the real economic value of the MPT is not yet known. Nevertheless, this test is offered commercially in at least one state.\* In the near future, this service will probably be offered throughout the country.

\*Mid-States Lab., Inc., Box 485, Hillsboro, Wisconsin 54634

## Veterinary Conference Successful

A well-rounded program and good attendance by veterinarians from across Missouri spelled success for the 55th Annual Conference for Veterinarians, held October 7 - 8, 1979, in Columbia. This Conference was sponsored by the College of Veterinary Medicine, the UMC Extension Division and the Veterinary Medicine Alumni Association.

Over 230 veterinarians came to Columbia to see and hear presentations by faculty of the College as well as special programs given by six invited speakers.

Dr. Robert Hardy, Associate Professor at the College of Veterinary Medicine, University of Minnesota, presented "A Problem Oriented Approach to the Vomiting Patient". Dr. Victor Jacobs, Professor of Agricultural Economics at UMC presented "Can You Ride the Cattle Cycle?" Dr. John McCormack, Associate Professor the College of Agriculture, University of Georgia, spoke on "Bovine Eye Problems and Eye Surgery". Dr. Leon Scrutchfield from the College of Veterinary Medicine, Texas A&M University, talked about "Treatment of Peritonitis in Horses", and Dr. Charles Stumpff, USDA veterinarian in Kansas, presented "Tuberculosis, Injections and Reactions". Dr. Taylor Woods, State Veterinarian, MDA, talked about brucellosis control in Missouri.

College faculty completed the Conference with such topics as



Because veterinarians from across the state come to this conference, this is an ideal time for ancillary meetings of many groups and committees.

rabies research, insecticides in food animals, and antiepileptic therapy.

At the Conference's Banquet on the evening of October 7, Chancellor Barbara Uehling presented the Veterinary College's Distinguished Service Award to Mr. John Olin. Dr. Ed Kozicky accepted the award in behalf of Mr. Olin. Mr. Olin helped establish the headquarters of the Orthopedic Foundation for Animals at the College and has contributed to that organization's growth. In addition, he has supported canine research efforts at the College.

Dr. Mel George, Vice President for Academic Affairs for the University of Missouri system, addressed the banquet attendees following the presentation of the Distinguished Service Award.



Dr. John McCormack from the University of Georgia warms up his audience at the conference with a joke before presenting his slides on bovine eye problems.



### Dr. Hertzog Honored

Dr. Robert E. Hertzog (right) was presented the University of Missouri Alumni Association Citation of Merit Award and the Lee Rolf Memorial Award with Statuette at the Alumni Luncheon, October 7, which was part of the 55th Annual Conference for Missouri Veterinarians.

Dr. Raymond C. Ebert II (MO 70) (left), who is Vice President of the Alumni Association, presented the

award to Dr. Hertzog. Dr. Ebert practices in Pleasant Hill, Missouri.

Dr. Hertzog received his DVM degree from UMC in 1956. He is part of a multi-veterinarian practice in Lee Summit, Missouri, and he is the veterinarian for the Swope Park Zoo in Kansas City.

Dr. Hertzog is a former President of the Missouri Veterinary Medical Association. He currently serves on the state board of veterinary medical examiners.

## Anesthesiologist Appointed

Dr. Beverly A. Gilroy has been appointed Assistant Professor in the Department of Veterinary Medicine and Surgery. Her appointment at the College as an anesthesiologist began in September, and she is working in both the companion animal and the large animal sections of the Teaching Hospital.



Until her appointment at the College, Dr. Gilroy had been a Postdoctoral Fellow at the School of Medicine, University of California at San Diego, involved in research on neuroresuscitation.

Dr. Gilroy received the DVM degree from Michigan State University in 1971. While in the U.S. Air Force, she was awarded an M.A. degree in education in 1976. Following that, Dr. Gilroy entered the residency program at the College of Veterinary Medicine, University of California at Davis. Specializing in anesthesiology, she completed that program in 1978.

Dr. Gilroy has successfully completed written examinations and will soon be taking oral examinations for the American College of Veterinary Anesthesiology.

When asked why she chose to work at the College, Dr. Gilroy replied that she was wanting a clinical anesthesiology position and was impressed by the College, particularly the present anesthesiology faculty.

## Turkey Research Boosted

The Missouri Turkey Merchandising Council presented a check in September for \$2500 to the College to support research into disease control of turkeys. The Council cited research efforts of Dr. L. D. Olson, Professor of Veterinary Pathology.

Dr. Olson has several research projects currently underway in diseases of turkeys. Among his recent research accomplishments, Dr. Olson demonstrated that inoculations with a harmless strain of *Pasturella* protected turkeys against fowl cholera, a disease which has held back Missouri's turkey industry.

## Award to Associate Dean



Dr. E. A. Corley, Associate Dean for Academic Affairs at the College, was unanimously selected to be one of the recipients of the 1979 Faculty/Alumni Awards given by the University's Alumni Association.

The Awards Committee of the Alumni Association recognized several of Dr. Corley's accomplishments while a faculty member at UMC. Among them, veterinary students selected him twice, in 1969 and in 1972, for the Norden Distinguished Teacher Award, which is presented to only one faculty member at the College each year.

Dr. Corley took a major role in starting up the College's residency program. This was the first residency program in any U.S. veteri-

nary college that was clinic oriented and not tied to a degree program. In addition, Dr. Corley played a primary role in moving to UMC and expanding the Orthopedic Foundation for Animals, a nationally-renowned organization for consultation and research into bone and joint diseases of animals.

Dr. Corley has been a faculty member at UMC since July, 1966. In 1972, he became Chairman of the Department of Veterinary Medicine and Surgery, the largest department of the Veterinary College, and in 1974 he was appointed Associate Dean for Academic Affairs.

Dr. Corley received the DVM degree from the University of Georgia at Athens in 1957, and remained there as a faculty member until 1963. In 1966 Dr. Corley was awarded the Ph.D. degree, specializing in radiation biology and radiology, from Colorado State University.

He was board certified in 1965 to become a Diplomate of the American College of Veterinary Radiologists, a specialty group. He was President of that group from 1970 to 1971.

The Faculty/Alumni Awards were inaugurated in 1968 by the University of Missouri-Columbia's Alumni Association to recognize faculty and alumni achievement at all levels.

Along with other recipients of the award this year, Dr. Corley attended a special banquet and ceremonies on October 12.

## Food Animal Production Conferences Approved

### College/Producer Communications to Improve

The Missouri Food Animal Production Conferences Program has been approved for funding totaling \$13,560 by the Alumni Development Board of the University of Missouri. The College will sponsor the three-year series of conferences beginning this winter.

The intent of the conferences is to improve communication and understanding between the College and its swine and beef cattle constituencies throughout the state. College programs in research, extension, continuing education, and professional service activities can then be better

tailored to the needs of Missouri food animal production.

When proposing this program, Dr. Lloyd Faulkner, Associate Dean for Research and Graduate Studies at the College, stated; "As a consequence [of this program], the production of meat and animal by-products should gain efficiency, benefitting all Missouri citizens. Simultaneously, when users of the College's programs are aware of College and University needs and problems, they may contribute to the solutions of some of our problems. . ."

# The Making of Specialists

## Not a Graduate Degree Program, Resident Training Prepares Veterinarians for Board Certification

Whom do you consult for that unique, hard-to-diagnose malady? The specialist, of course.

But what sort of education does a veterinarian need to become a specialist?

The College trains selected veterinarians to become specialists by means of its residency program. This program prepares veterinarians for service-oriented, problem-solving professional careers in specialty areas such as radiology or theriogenology, to name just two.

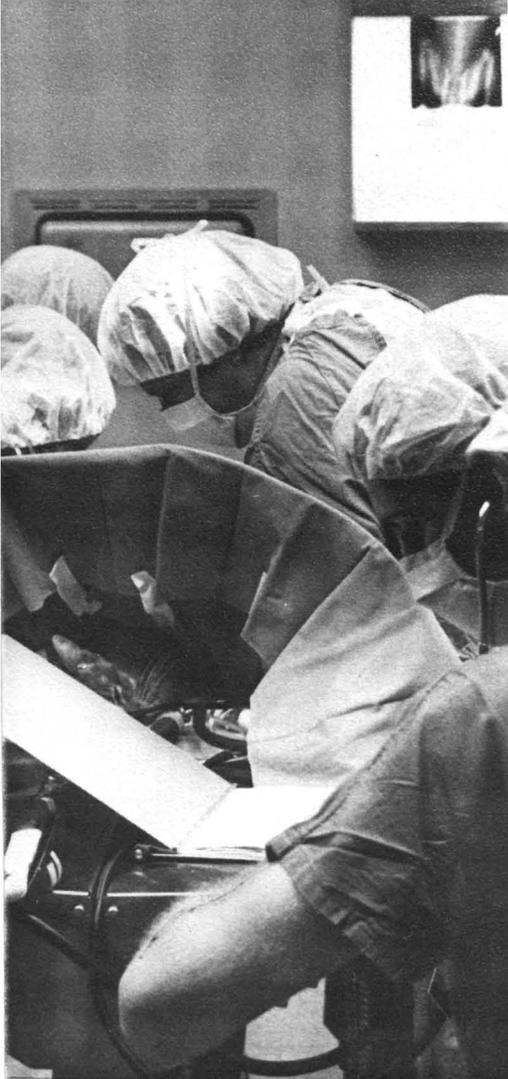
Expertise in a specialty is measured by means of comprehensive specialty board examinations; those doctors who pass a qualifying examination and then a certifying examination are accorded Diplomate status within a specialty group such as the American College of Veterinary Radiologists. The Veterinary College gears its resident program to enable residents to pass these

examinations and become Diplomates. Although it trains specialists, the College has no part in giving the examinations—that is the responsibility of the specialty groups.

The residency program should not be confused with the College's graduate degree program. Most residents are not seeking graduate degrees, instead, they are concerned with board certification. Some residents have expanded their programs to include graduate degrees.

To be considered for admission to the College's residency program, the applicant must have graduated from a college of veterinary medicine approved by the American Veterinary Medical Association (or have a certificate from the Education Commission for Foreign Veterinary Graduates). The College prefers ap-

*cont., next page*



*Residents in small animal surgery handle, in addition to routine work, unique and difficult cases as part of their advanced training.*



*Dr. Joanne Burns, radiology resident points out features in radiographs to VMIV students, Jim Crooke (left) and Dave Schupp (right).*



*Dr. Bartram Ruark (right), anesthesiology resident, assists Dr. Harold Garner with an equine patient.*

*Dr. Benita Wright (left) and Dr. Bonnie Buntain (right), both of whom are residents in Large Animal Medicine and Surgery, suture an intravenous jugular catheter into place.*



plicants who have had at least one year's experience in practice or as an intern prior to admission.

Although the Department of Veterinary Medicine and Surgery has most of the 17 residency positions, the other three departments of the College also have their own residency positions. Overseeing the entire program is the Office of Associate Dean for Research and Graduate Studies. In addition, the College has a committee, the Graduate-Resident Training Program Committee, that establishes guidelines and policies for residency programs. The Office of the Dean reviews all guidelines and policies.

Within a department, a resident receives a non-regular appointment as Resident Veterinarian. Each resident receives a stipend.

A veterinarian who enters a residency must be accepted by a major advisor from the chosen specialty in the department. Within three months after a resident has been accepted, the advisor chooses other faculty members to serve on a committee that prepares the training agenda necessary for that particular doctor. Each agenda must fit the curriculum of the specialty and the department.

A veterinarian remains a resident for two to three years, time depending on what is needed to qualify for board certification. During those two or three years, the resident's committee evaluates the progress of that person. Upon successful completion of training, the veterinarian receives a resident training certificate from the College.

As part of resident training, the veterinarian assists professional-level students. In this capacity, the resident has the opportunity to examine many patients, many of which are referrals.

The College's present resident training program, begun in 1970, was the first one among U.S. veterinary colleges that was not tied to a graduate degree program of some sort. The program started small,

confined mainly to that department.\* Over the years, as funding permitted, residency positions were added to various disciplines.

Beginning in fiscal year 1978-79, the University provided a special program improvement allocation for the purpose of upgrading the College's residency program. With those funds, seven new residencies were added, bringing the total to 17, and three new faculty positions were added to strengthen resident instruction. Now, all but two residencies are funded by state monies.

Special outside funding provides two positions. The James H. Woods Foundation has funded since 1978 a residency in veterinary ophthalmology, and that particular position will probably be terminated when the current resident, Dr. Cecil Moore, completes his training. The St. Louis Zoological Park has supported a residency for several years.

In light of the fact that faculty in several specialty areas is only "one deep" at the College, residents can help with the work load of those faculty and provide backup when

\*An exception was a residency in Public Health, Department of Veterinary Microbiology. This position began in 1967 and was then part of the M.S. degree in Public Health program.

necessary. Because residency positions are not filled by the same persons for more than two or three years, the turn-over of veterinarians filling those positions provides a great influx of new ideas and experiences which enhance teaching and research.

Veterinarians completing residencies go on to faculty positions at other veterinary colleges, specialty centers such as the Animal Medical Center in New York City, or private practice. Thus, this College's resident program benefits the entire profession.

## New Residents

New Residents at the College as of September 1 are: Jenifer Balke, Theriogenology (DVM—Guelph, 1977); Kathie Digilio, Small Animal Medicine (DVM—Texas A&M, 1977); Thomas Goetz, Equine Surgery (DVM—Illinois, 1979); Anne Kotrba, Equine Medicine (DVM—Illinois, 1978); Thomas Meehan, Zoo Animal Medicine and Surgery (DVM—UMC, 1977); Sergio Rubio, Small Animal Surgery (DVM—San Marcos University, Lima, Peru, 1970); Amelia Toomey, Small Animal Surgery (DVM—Michigan State University, 1977); and Benita Wright, Food Animal Medicine and Surgery (DVM—Tuskegee, 1979).

# Faculty Recognized



Dr. MacDonald



Dr. Simpson

Drs. John MacDonald, Stephen Simpson, and Larry Thornburg, each of whom are Assistant Professors at the College, were notified in late September that they have been awarded Diplomate status in their respective specialty groups in recognition of their advanced proficiency and knowledge.



Dr. Thornburg

Drs. MacDonald and Simpson are now Diplomates in the American College of Veterinary Internal Medicine. Dr. MacDonald's spe-

cialty is dermatology, and Dr. Simpson's specialty is neurology. Dr. Thornburg is a Diplomate of the American College of Veterinary Pathology. To achieve Diplomate status, each of these veterinarians had to successfully complete two sets of comprehensive examinations in addition to having several years of professional experience following graduation.

Dr. MacDonald received his DVM degree from the New York State College of Veterinary Medicine at Cornell. He has been with the College since 1977.

Dr. Simpson was awarded his DVM degree from Auburn University and his M.S. from Purdue University. He has worked at the College since 1976.

Dr. Thornburg received his DVM degree from Texas A&M University and his PhD degree from the University of North Carolina at Chapel Hill. He has worked at the College since 1975.

## Surgeon Hired

Dr. William G. Whittick has been appointed on a non-regular basis as Associate Professor at the College. Dr. Whittick teaches veterinary surgery, and he replaces Dr. Roger Brown who recently transferred to the Department of Veterinary Anatomy-Physiology. Dr. Whittick began work on October 1.



Dr. Whittick received the DVM degree from the Ontario Veterinary College, Guelph, Ontario, in 1955. He graduated with first class honors.

He is a Diplomate of the American College of Veterinary Surgeons, a specialty group which recognizes advanced proficiency and training.

Dr. Whittick has just returned to the U.S. from a teaching assignment as a veterinary surgeon in Malaysia.

## Kennel Club Donates to Develop Canine Research Center

The Mississippi Valley Kennel Club donated \$1500 in September to the College to help develop the Canine Research Center.

The proposed Canine Research Center will be located at Middlebush Farm, adjacent to the Equine Center, and will be devoted to research into canine diseases. The Canine Research Center will be developed entirely by private donations.

The Mississippi Valley Kennel Club draws its membership from the St. Louis area and surrounding counties in both Missouri and Illinois.

## Jefferson Club, Veterinary Medicine Chapter

Ms. Gwen Winningham of Jackson, Missouri, has become the third member of this chapter of the Jefferson Club.

Ms. Winningham's bequest will be used to establish the "Nelson L. Stone Scholarship". The scholarship is to be presented on an annual basis to a third or fourth year veterinary student in recognition of scholastic ability, interest, and proficiency in small animal medicine and surgery. In addition, the scholarship's recipi-

ent may serve as a preceptor in Dr. Stone's practice during enrollment in optional Block periods.

The Jefferson Club is the way in which the Alumni Association of the University of Missouri recognizes those who bequest in their wills \$20,000 or more to the University. If a donor wishes the contribution to go to the College, that donor may request to belong to the Veterinary Medicine Chapter.

## Veterinary Medical Review

College of Veterinary Medicine  
and Cooperative Extension Service

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