



VETERINARY MEDICAL REVIEW

School of Veterinary Medicine
University of Missouri-Columbia

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Dr. Jensen Visits Utrecht University

Dr. Harlan E. Jensen, associate professor of veterinary medicine and surgery, School of Veterinary Medicine and associate professor of ophthalmology, School of Medicine will travel to the Netherlands in January at the direct invitation of the University of Utrecht.

Dr. Jensen will spend six months in the Netherlands lecturing and working in the ophthalmology department of the University of Utrecht's School of Veterinary Medicine. While guest lecturing in Utrecht, Dr. Jensen will be on leave of absence from the University of Missouri-Columbia until mid July.



Dr. Jensen received his D.V.M. from Iowa State University and a Ph.D. from the University of Missouri in August 1971. He was in private practice for more than 20 years before coming to the University of Missouri in 1967.

Dr. Jensen was recently elected president of the American College of Veterinary Ophthalmology and is also a member of Phi Zeta, the American Animal Hospital Association, the American Veterinary Medical Association, the Missouri Ophthalmology Society and Phi Kappa Phi.

March 29
Career Day



Dr. Wayne E. Wingfield accepts a check for \$2,297 from Emil Klinckhardt, president of the St. Louis Dog Breeders Association.

St. Louis Dog Breeders Donate Funds to School

The School of Veterinary Medicine has received a \$2,297 donation from the St. Louis Dog Breeders Association.

Funds from the Association's contribution, its third donation to the Veterinary Medical School in as many years, will be used to purchase an electro-surgical unit for use in facilitating small animal surgical procedures at the School's Hospital-Clinic.

Previous donations from the St.

Louis Dog Breeders Association have been used by the School for the purchase of ophthalmology diagnostic equipment, an electrocardiograph and other cardiology equipment, and for research into heartworm disease in dogs.

Dr. Wayne E. Wingfield of the Department of Veterinary Medicine and Surgery accepted the donation from Emil Klinckhardt, president of the Association.

Dr. Garner Develops New Technique For Measuring Blood Pressure In The Horse

For the modern physician, taking a patient's blood pressure is a routine operation requiring little more effort than taking his temperature. As any veterinarian can tell you, however, the measurement of blood pressure in animals often requires a more complicated and time consuming procedure than that used by his medical counterpart.

Dr. H. E. Garner, professor of veterinary medicine and surgery, School of Veterinary Medicine, has applied a new technique to simplify the measurement of blood pressure in an animal that had previously been one of the most difficult to measure—the horse.

Uses Doppler Technique

In the Doppler technique an ultrasonic beam is focused toward the arterial wall and the reflected Doppler signal is sensed with piezoelectric crystals. This technique has previously been employed in the blood pressure measurement of infants and humans suffering from shock (situations in which the Korotkoff method is often ineffective) and in blood pressure measurement in the dog and rat, two animals whose Korotkoff sounds are also beyond the range of human hearing.

In applying this technique to the horse, Dr. Garner places a sphygmomanometer cuff much like the one used on the human forearm around the base of the horse's tail and attaches a piezo crystal transducer just behind it over the coccygeal artery. Air and ultrasound are delivered to the sphygmomanometer cuff and piezo crystal transducer with a standard cuff pump and an ultrasonic Doppler device respectively.

Indirect Method Ineffective

Blood pressure, animal or human, may be measured either directly (intra-arterially), necessitating surgical exposure of the artery, or indirectly. The routine procedure in measuring blood pressure in man is an indirect method utilizing the appearance and disappearance of Korotkoff sounds which are produced by the flow of blood in the artery as a pressurized cuff around the forearm is slowly deflated.

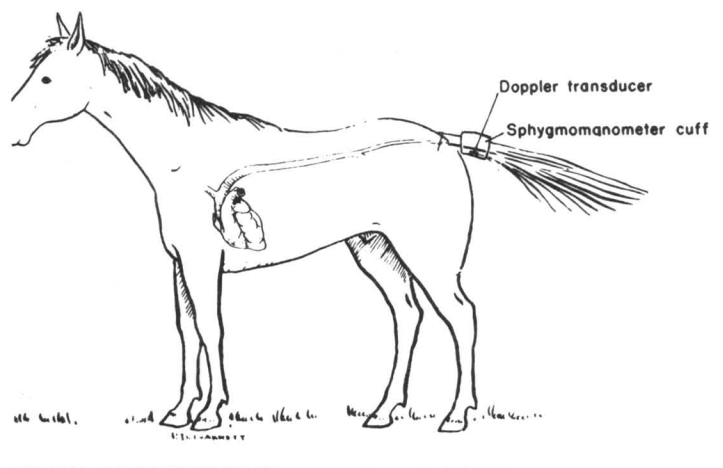
This traditional indirect measurement process, known as the Korotkoff method, has not been effective in horses because the fundamental frequency of their arterial sounds is below the hearing threshold of man who consequently is unable to detect them. The unhappy alternative, then, for an accurate measurement of a horse's blood pressure has been surgical entry into the femoral artery in the horse's upper leg, about a sixty minute procedure.

Dr. Garner, however, has now applied the ultrasonic Doppler technique to the measurement of blood pressure in the horse to circumvent this situation.

Dr. Garner indicated that the hairless area on the underside of the surface of the tail, the relative absence of muscle tremor,

and the superficial location of the coccygeal artery are important aspects influencing the selection of this particular site in favor of either the hind or forelimb.

With the cuff and transducer in place, the veterinarian may measure the horse's blood pressure in almost the same way a physician measures that of his human patients. The previously undetectable Korotkoff sounds are transformed by the piezo crystal transducer into audible electronic tones.



Testing The Technique

To insure the reliability of blood pressure measurement by this process, Dr. Garner tested the procedure by measuring the blood pressure of four horses and six ponies by the Doppler and intra-arterial methods simultaneously. A total of 371 indirect pressure measurements were verified with intra-arterial pressure recordings with correlations ranging from .91 to .99. "On the basis of this preliminary investigation," Dr. Garner explains, "the ultrasonic Doppler method of measuring arterial blood pressure in the horse appears reliable and clinically reproducible."

Giving the veterinarian the necessary process and hardware to accurately measure the horse's blood pressure indirectly will aid both the veterinary practitioner and the researcher. In veterinary practice, Dr. Garner feels the ultrasonic Doppler method will provide more effective anesthesia monitoring and function as a significant tool in disease characterization and therapy evaluation.

For the researcher, this newly applied indirect method will facilitate the collection of data that may offer valuable insights into conditions such as hypertension which affect both the horse and man.

Faculty Participate In Research Meeting

Several faculty members of the UMC School of Veterinary Medicine presented papers at the 53rd annual meeting of the Conference of Research Workers in Animal Disease held Nov. 27-28 in Chicago, Ill.

The papers included "Rectal Stricture in Swine" by *Dr. L. D. Olson*, associate professor of veterinary pathology; "DNA, RNA and Protein in Forebrains of Sinclair (S-1) Miniature Swine Undernourished from 5, 21 or 35 to 63 Days of Age," presented by *Dr. M. E. Tumbleson*, associate professor of veterinary physiology and pharmacology, and coauthored by *T. M. Badger* and *Dr. D. P. Hutcheson*;

"Free Amino Acid Concentrations in Forebrains of Sinclair (S-1) Miniature Swine Undernourished from 5, 21 or 35 to 63 Days of Age," presented by *T. M. Badger*, research assistant in veterinary physiology and pharmacology, and coauthored by *Dr. M. E. Tumbleson* and *Dr. D. P. Hutcheson*; "Effects of Alcohol Consumption on Enzymes of Ammonia Metabolism in Sinclair (S-1) Miniature Swine," presented by *Dr. E. G. Komer*, research associate in veterinary physiology and pharmacology, and coauthored by *Dr. M. E. Tumbleson*;

"Effect of Ethanol Consumption on Enzyme Activities in Tissues of Young Sinclair (S-1) Miniature Swine Fed Two Levels of Dietary Protein," presented by *Dr. A. M. Preston*, research associate in veterinary physiology and pharmacology, and coauthored by *Dr. M. E. Tumbleson* and *Dr. D. P. Hutcheson*; "Developmental Aspects of the Binding of Several Drugs to Porcine Plasma," presented by *Dr. C. R. Short*, associate professor of veterinary physiology and pharmacology;

"Cell Mediated Immune Responses in Anaplasmosis Infection," presented by *Dr. G. M. Buening*, assistant professor of veterinary microbiology; "Early Distribution of Marek's Disease Virus and Viral Antigens in Tissues of Infected Chickens," presented by *Dr. H. K. Adldinger*, associate professor of veterinary microbiology; "Obturator Neurectomy and Its Relationship to the Downer Cow Syndrome," presented by *Dr. V. S. Cox, Jr.*, assistant professor of veterinary anatomy, and coauthored by *Dr. J. E. Breazile*.

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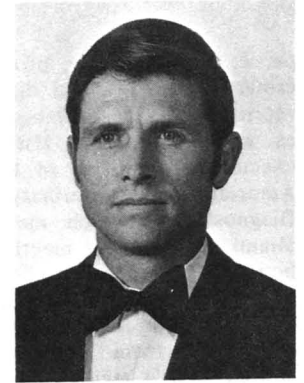
Three Named To Who's Who



Moloney



Loveitt



McGruder

Three seniors in veterinary medicine have been chosen for Who's Who Among Students in American Colleges and Universities. They are Patrick John Moloney, Burleigh Loveitt and John McGruder. They have been selected on the basis of their leadership qualities, participation in activities as a student and their scholastic record. All three have been very active in their student careers and have received many honors and awards.

Pat Moloney is from St. Louis and attended the University of Missouri-St. Louis before entering veterinary medicine. He is president of the Student Chapter of the American Veterinary Medical Association and received the Missouri Veterinary Medical Association award last spring which was given for the first time.

Burleigh Loveitt is from Cumberland, Me. and attended the University of Maine before entering veterinary medicine. He is president of the fourth year class.

John McGruder is a native of Butler, Mo. and received a B.S. in Agriculture from Arkansas State University. He received the Merck Award last spring for having attained the highest scholastic average.

Navy Extends Study On Oxygen Toxicity

A research study of oxygen and its relation to human health being conducted at the John M. Dalton Research Center has received an \$18,000 grant from the U.S. Office of Naval Research.

The grant, effective January 1, brings the Navy's total contribution to \$112,484 in its continuing support of the study which is now in its sixth year.

Dr. Olen R. Brown, associate professor of veterinary microbiology and Center investigator, is conducting the research project using bacteria and tissue cultures to measure the toxic effects of oxygen on enzymes and other life-supporting molecules.

While oxygen is necessary to maintain life, it can act as a toxic when too much enters the system. The danger of the body receiving too much oxygen, a condition called hyperoxia, is prevalent when individuals receive the life-supporting element under high-pressure conditions. Scuba-divers, submarine personnel, high-altitude aircraft pilots, and medical patients receiving pressurized oxygen therapy are in this category. If the amount of oxygen and the at-

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Student Killed In Accidental Fall

Dale Grant Farmer, a fourth-year veterinary student, was killed Dec. 2 in an accidental fall from a Missouri River bluff near Columbia.

Dale enrolled in the University in 1963 and completed a B.S. degree in agriculture before entering the Veterinary Medical School.

His home is in Webster Groves. A memorial has been established and contributions may be sent to the St. Louis Crippled Children's Society.



Faculty notes

Dr. L. G. Morehouse, professor of veterinary pathology and director of the veterinary diagnostic laboratory, served as a delegate from Missouri to the executive committee of the American Association of Veterinary Laboratory Diagnosticians which met Nov. 5 in Miami, Fla. At this meeting Dr. Morehouse was installed as chairman of the organization's Laboratory Accreditation Committee as representative for this committee from the North Central United States region. He also participated in a workshop on "Effective Laboratory Management Through Communication" Nov. 15 in St. Louis.

Dr. C. E. Martin, associate professor of veterinary medicine and surgery, took part in a "Workshop on Infertility and Pregnancy Diagnosis in the Cow" Nov. 12-15 in Springfield, Mo.

Dr. C. R. Dorn, associate professor of veterinary microbiology and of community health and medical practice, gave a presentation on "Food Hygiene Curriculum Development" at the 14th annual Conference of Teachers of Food Hygiene Nov. 1-17 at the University of California at Davis.

Dr. H. E. Jensen, associate professor of veterinary medicine and surgery, of ophthalmology and of veterinary ophthalmology, gave a seminar presentation to the Honolulu Veterinary Medical Association Nov. 27 and 28 and lectured at the Honolulu Kennel Club Nov. 29 where he also held a one-day eye clinic.

Dr. J. R. Coffman, associate professor of veterinary medicine and surgery, presented a paper on "Characterization of Refractory Laminitis," coauthored by *Dr. H. E. Garner*, professor of veterinary medicine and surgery, at the American Association of Equine Practitioners meeting Dec. 4-6 in San Francisco, Calif. *Dr. Garner* also presented a paper on "Indirect Blood Pressure Measurement in the Horse."

Navy Con't

Atmospheric pressure are too great, the individual suffers convulsions and possibly death.

In his research, Dr. Brown utilizes pressure chambers where bacteria, tissue cultures, purified molecules and even whole animals are placed under various atmospheres of oxygen. Cellular responses are recorded indicating cellular sensitivity at various atmospheric pressures of oxygen and the functional levels at which organisms sustain damage.

Research Meeting Con't

"Maturation of the Electroretinogram in the Dog," presented by *Dr. G. R. Kirk*, assistant professor of veterinary anatomy, and coauthored by *Dr. J. E. Breazile*; "Comparative Plasma Estradiol and Progesterone Values at Parturition Between Beef and Dairy Cattle," presented by *Dr. E. C. Mather*, assistant professor of veterinary medicine and surgery;

"Transmissible Gastroenteritis (TGE) in Feeder Swine: An Experimental Study on the Role of Feeder Swine in the Epizootiology of TGE," presented by *Dr. M. Morin*, research associate in veterinary pathology, and coauthored by *Dr. L. G. Morehouse* and *Dr. R. F. Solorzano*; "Effectiveness of Protein Blocks for Anthelmintic Administration to Cattle," presented by *Dr. E. R. Ames*, associate professor of veterinary microbiology;

"Experimental and Clinical Use of Dissociative Anesthetics in the Domestic Feline," presented by *Dr. R. R. Paddleford*, resident in veterinary medicine and surgery, and coauthored by *Dr. C. E. Short*; and "Etiology of Foot-Rot in Cattle," presented by *Dr. J. N. Berg*, instructor in veterinary microbiology, and coauthored by *Dr. R. W. Loan*.

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