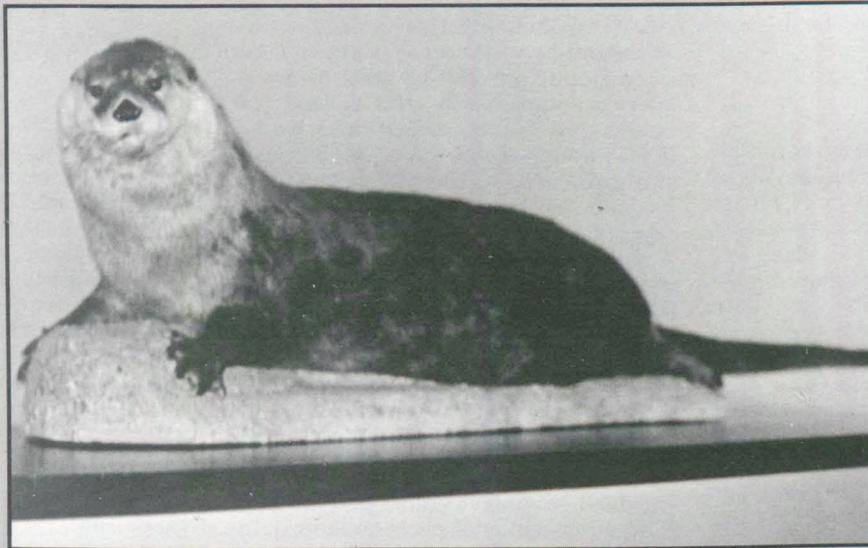


VETERINARY MEDICAL REVIEW



THE RETURN OF THE OTTER

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

May/June 1982, N.S., Vol. 3, No. 3

In this issue . . . cover story, p. 4; non-selective angiography, p. 2; new continuing education director appointed, p. 6; and more.

Non-selective angiography

A simple tool for diagnosing congenital heart disease

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Department of Veterinary Medicine & Surgery

Plain film thoracic radiographs of animals with congenital heart disease are not always diagnostic. It may be necessary to perform a contrast study to demonstrate the anomaly present. A fairly simple, relatively safe special procedure used to evaluate the heart and pulmonary vasculature is non-selective venous angiocardiology. In non-selective angiocardiology, positive contrast media is injected intravenously and a series of radiographs is taken as the contrast media flows through the chambers of the heart and great vessels. Because the contrast media flows through the heart rapidly, a rapid film-changing device must be used. A method of rapidly changing films that can be employed by the general practitioner to perform angiography will be described later in this article.

Technique for non-selective angiocardiology

The animal should be anesthetized or heavily sedated to prevent it from moving during the procedure. The animal is placed in lateral recumbency with the primary X-ray beam centered over the thorax. To allow for the added density of the contrast media, the kvp should be increased 4-6 kvp over the plain film technique. The jugular vein is catheterized with as large a catheter or needle as possible to permit a rapid injection of the viscous contrast media that flows through the heart and great vessels as a bolus. One-half cc/lb of

water-soluble iodinated contrast agent* warmed to body temperature is then injected and a series of radiographs are taken. It normally takes two or three seconds for the contrast media to reach the right side of the heart and four to six seconds for the contrast media to reach the left side of the heart. By using the rapid film-changer, it is possible to take three films in six seconds and demonstrate the contrast media in the individual chambers and great vessels of the heart.

Indications

Non-selective angiocardiology can be used to identify most structural abnormalities of the heart. It is an excellent method to diagnose aortic or pulmonic stenosis as the contrast media will outline the characteristic post-stenotic dilatation of the particular vessel involved. It is the method of choice for demonstrating cardiovascular lesions with right-to-left shunts such as Tetralogy of Fallot.

Contraindications

Animals with left-sided heart failure, fluid imbalances, serious arrhythmias, or severe respiratory diseases are high anesthetic risks and should not be considered for this procedure. It is not as effective for the diagnosis of cardiovascular lesions

*Hypaque M 75% Megiumine & Sodium Diatrizoate, Winthrop Laboratories, New York, N.Y.



Figure 1: The anesthetized animal is positioned on the rapid film-changer and cassettes are slid through the tunnel between exposures.

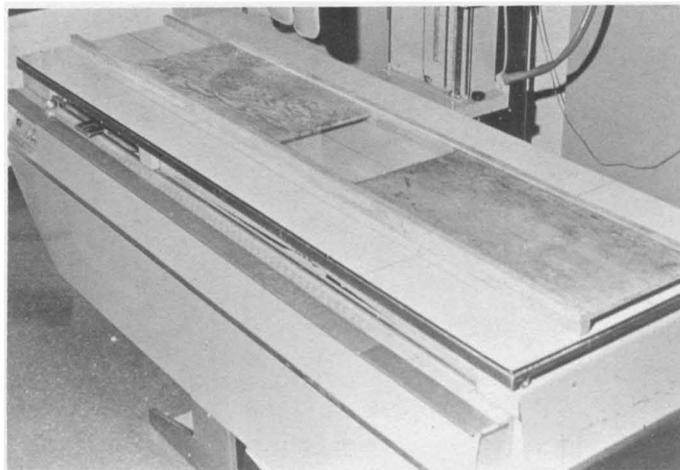


Figure 2: This shows the tunnel rapid film-changer on an X-ray table. It should be long enough to hold five radiographic cassettes.

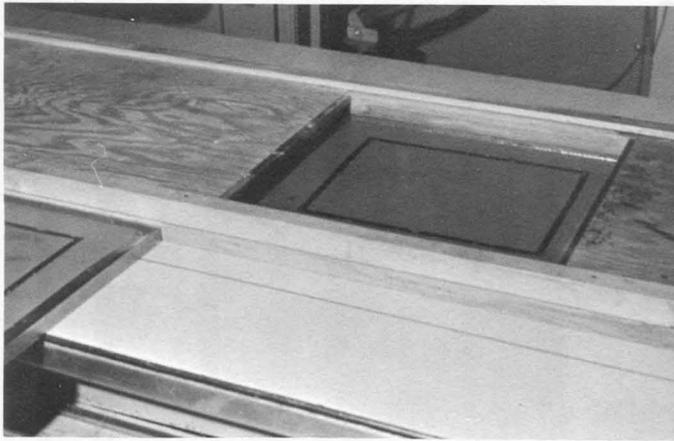


Figure 3: Notice the relationship between the top of the tunnel and the top of the radiographic cassette. The top of the tunnel should be elevated off the table to allow the cassettes to slide freely through the tunnel.

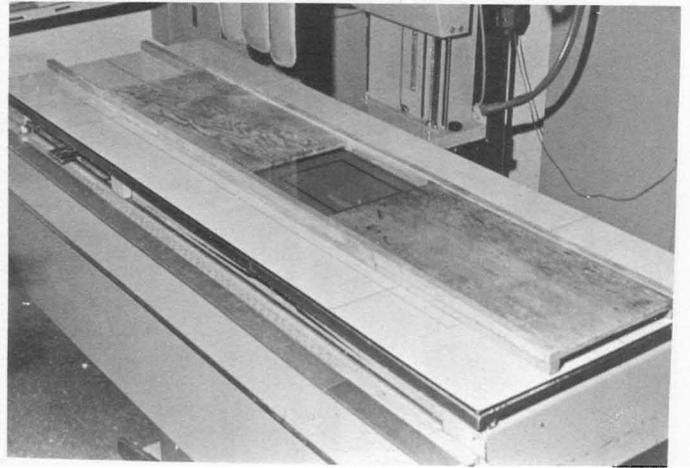


Figure 4: The Plexiglas window should have the same dimensions as the radiographic cassette.

with left-to-right shunts such as Ventricular Septal Defect. On animals weighing more than 30 pounds, the detail of the study decreases because of the inability to inject the contrast media rapidly as a bolus and the dilution of the contrast media in the bloodstream.

Tunnel technique rapid film-changer

The film-changer can be built rather inexpensively with two sheets of plywood, Plexiglas, and several wooden rods. The exact dimensions of the film-changer can be adapted to fit the size of the cassettes and X-ray table used in the hospital. The film-changer is essentially a tunnel. The dog is placed on top of the tunnel and the films are slid through the tunnel underneath the dog between exposures. This allows the dog to remain stationary between radiographs (see Figure 1). The tunnel should be long enough to hold at

least five radiographic cassettes and slightly wider than the width of the cassettes to be used (see Figure 2).

The top of the tunnel consists of plywood sheets that are elevated by wooden rods about three-fourths of an inch. This allows the cassette to slide freely through the tunnel (see Figure 3). Between the plywood sheets in the center of the tunnel, there is a Plexiglas window with the same dimensions as the X-ray cassette (see Figure 4).

The animal is placed in lateral recumbency on the tunnel with its thorax positioned over the window and centered within the primary X-ray beam. If there is not sufficient collimation on the X-ray machine to restrict the beam to the Plexiglas window, the top of the tunnel can be lined with lead strips. Three cassettes then are loaded into the tunnel, tube side up, with the first cassette positioned directly under the Plexiglas window (see Figure 5).

The film is exposed after the injection, and another cassette, tube side down, is pushed into the entrance of the tunnel until it just disappears under the top of the tunnel. This pushes the exposed cassette forward and positions a new unexposed film properly centered under the window ready for the second exposure. This procedure is repeated once again until the three radiographs are taken (see Figure 6). Using this method, it is possible to take three radiographs in six seconds to properly evaluate the chambers of the heart and great vessels.

Normal study

The normal study consists of three radiographs taken in sequence (see Figure 7). The first radiograph should be taken

Continued on Page 6

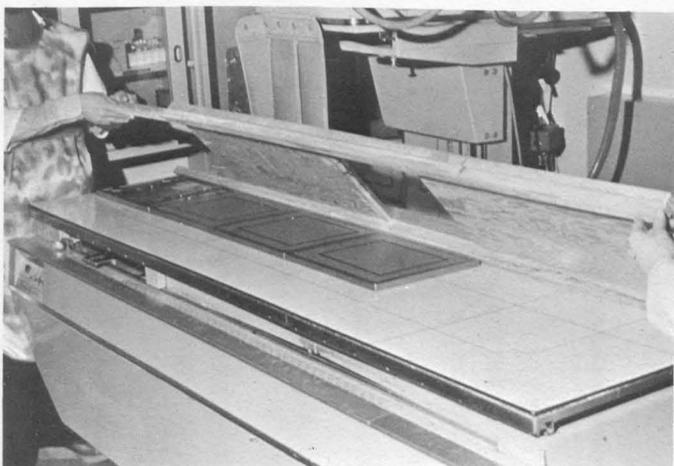


Figure 5: Three cassettes, tube side up, are loaded into the tunnel with the first cassette positioned under the Plexiglas window.

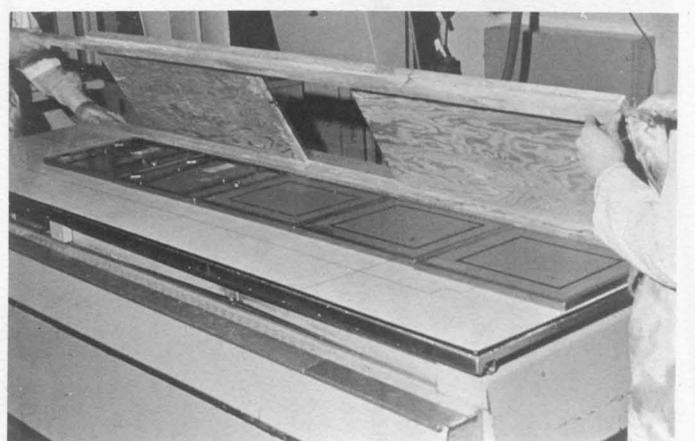


Figure 6: At the conclusion of the procedure, three exposed radiographic cassettes, tube side up, and two unexposed radiographic cassettes, tube side down, will be in the tunnel.

THE RETURN OF

Veterinarians contribute surgical aimed at repopulating Missouri

Veterinarians and conservation officials celebrated the return of the river otter to its native Missouri.

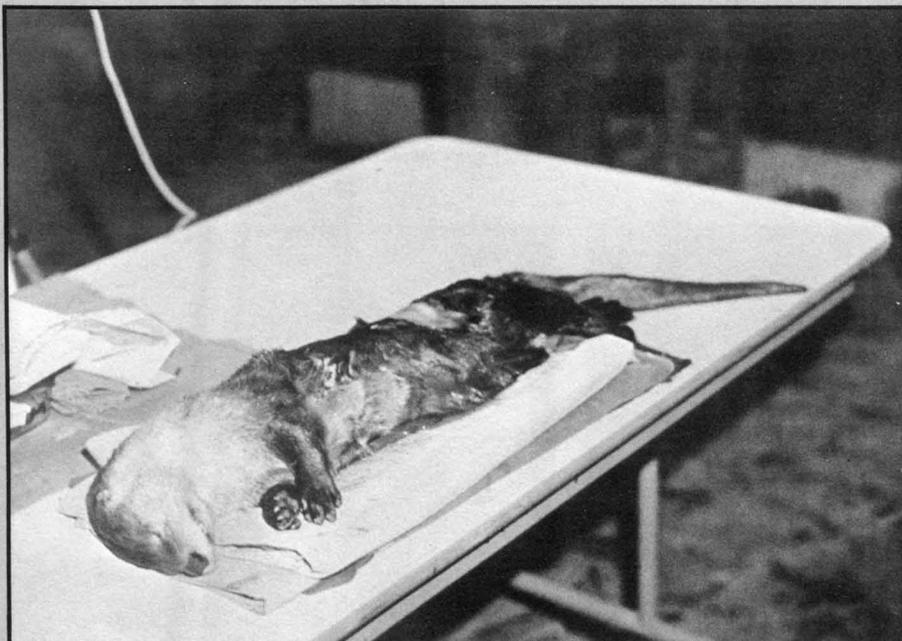
Eleven Louisiana otters were released into the waters of Missouri. The otter population dwindled in the 19th century. The animal was reintroduced when legislation was passed protecting the endangered species. The otters were traded wild turkeys to Kentucky for 20 otters that were trapped by fur trappers.

The group released in March, and a second group of otters carrying radio transmitters implanted surgically by Robert Youngquist and Jennifer Balke. The transmitters, powered by flashlight batteries, were inserted into laparotomy incisions.

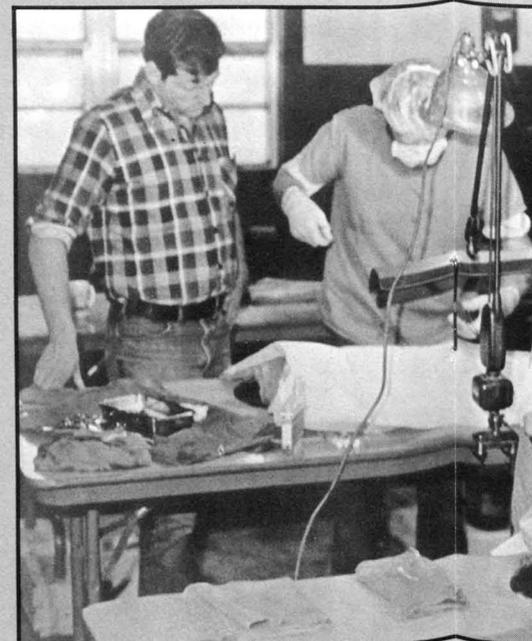
Biologists in the Missouri Department of Conservation will track the otters' activities through next spring to determine the species' home range and its own frequency that carries more than a mile, and to identify settlement areas. If everything goes as planned, 20 more otters will be released in 1983 and 20 more in 1984.



The wild otters were tranquilized before being prepped for surgery.



An otter awaiting surgery. The animals weighed between 8 and 20 pounds.



Dr. Jennifer Balke (foreground) and Dr. Robert Youngquist.

OF THE OTTER

*urgical skills to a state program
Missouri with river otters.*

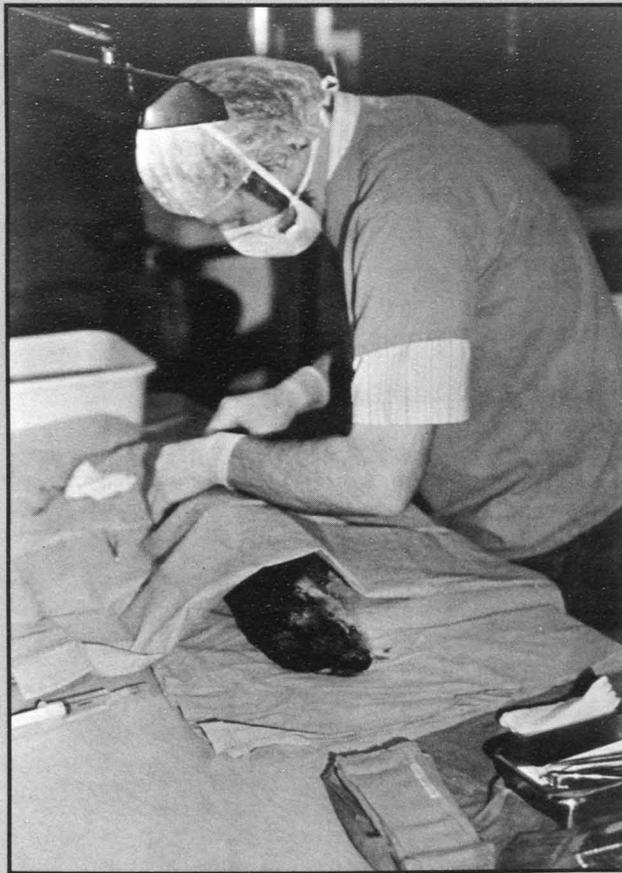
icials celebrated a homecoming of sorts March
tive Missouri.

ed into Swan Lake amid fervent hopes that they
Missouri. Once plentiful in the state, the otter
ry. The animals numbered only about 70 in 1937
g the endangered species. This spring, Missouri
otters that state had purchased from Louisiana

a second group of nine set free in April, are
urgically by College veterinarians Ron Elmore,
ke. The transmitters, about the size of two
laparotomy incisions behind the animals' last

ent of Conservation plan to monitor the otters'
mine the success of the program. Each otter has
an a mile, allowing biologists to map the otters'
s planned, 20 more otters will be added to the

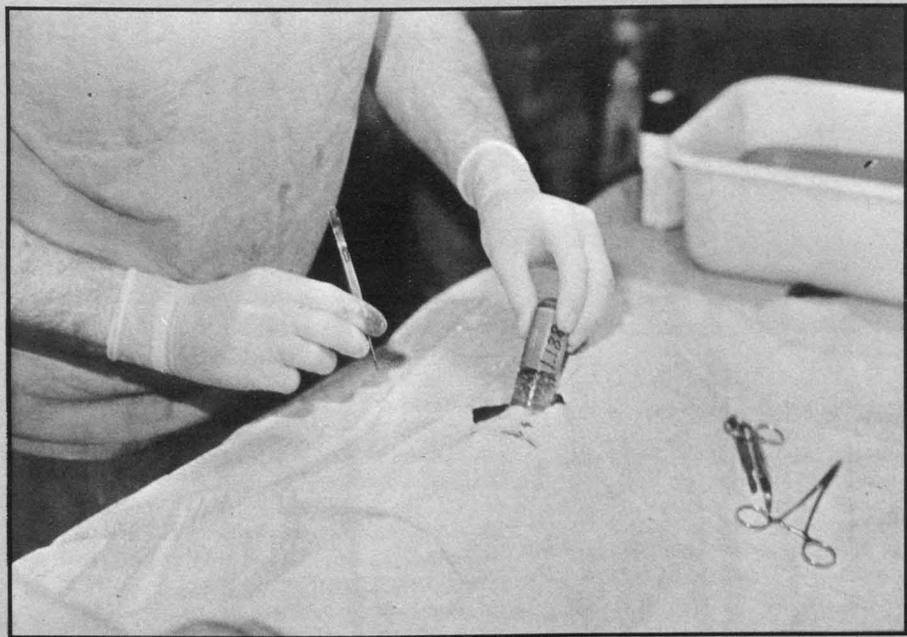
Ron Elmore photos



Dr. Youngquist at work on an otter.



and Dr. Robert Youngquist during surgery.



A radio transmitter is pushed into the incision.

Dr. Thorne appointed new CE director

Dr. James G. Thorne has been appointed Director of Continuing Education and Extension at the College.

Dr. Thorne, 45, has taught in the food animal clinic at the College since 1974. He holds a B.S. in agriculture, a D.V.M., and an M.S. in physiology from the University of Missouri, and a Ph.D. in physiology from the University of Georgia. He is a Diplomate and charter member of the American Board of Veterinary Practitioners.



A former director of veterinary services at Bergstrom Air Force Base in Austin, Texas, Dr. Thorne has practiced in Marceline and Wellsville, Missouri. Before his teaching appointment at the College, he taught at the University of Georgia College of Veterinary Medicine.

He is a member of the AVMA, MVMA, American Association of Bovine Practitioners, American Association of Veterinary Clinicians, Missouri Academy of Veterinary Medicine, West Central Veterinary

Medical Association, Phi Zeta and Gamma Sigma Delta. He served as co-chairman of the 57th Annual Conference for Missouri Veterinarians last year.

Dr. Thorne is the first permanent CE director at the College since Dr. Donald Blenden stepped down 4½ years ago. The position is now a fully funded full-time post.

New CE coordinator named

Marsha Murray has been named Coordinator for Continuing Education at the College. She will be working half-time this summer.

Mrs. Murray, 39, has worked in the CE office for the past 2½ years as a secretary. She holds a B.S. in elementary education from the University of Missouri.

She replaces Terry Robertson, who resigned to attend school full-time.



Datebook

July 19-22. 119th annual meeting of the American Veterinary Medical Association, Marriott Hotel, Salt Lake City, Utah. An alumni reception for graduates of the College will be held at 6:30 p.m. July 20 in the Emigration and Parley's rooms of the hotel. The alumni luncheon will be at noon July 21 in Salon G of the hotel.

October 10-11. 58th Annual Conference for Missouri Veterinarians, at the College and Columbia's Ramada Inn. Featured speakers will include Dr. Bud Fackelman, an equine orthopedist from Tufts University, Dr. Carl Osborne, a urologist from the University of Minnesota, and Dr. Steven Henry from Abilene Animal Hospital in Abilene, Kansas, who will speak on food animal topics, particularly swine.

Alumni reunions for the classes of 1957, 1967, and 1977 will be held the night before, October 9, at the Ramada Inn.

October 13-15. Symposium on Computer Applications in Veterinary Medicine, Mississippi State University College of Veterinary Medicine.

December 4-8. 28th annual meeting of the American Association of Equine Practitioners, the Hilton Hotel, Atlanta, Georgia. For information, contact Dr. Wayne Kester, Route 5, 22363 Hillcrest Circle, Golden, Colorado 80401.

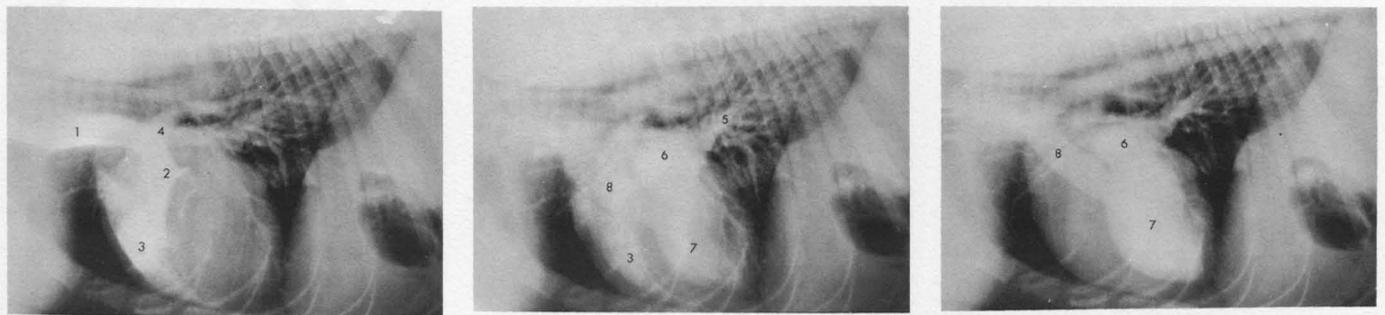


Figure 7: Normal angiocardiogram.

A. The first radiograph of the series taken immediately after the injection of contrast media. Note the contrast media outlining the normal cranial vena cava 1, right atrium 2, right ventricle 3, and main pulmonary artery 4.

B. This shows the second radiograph of the series. Note the contrast media outlining the normal right ventricle 3, pulmonary vessels 5, left atrium 6, left ventricle 7, and ascending aorta 8.

C. This shows the third radiograph of the series. Note the contrast media in the normal left atrium 6, left ventricle 7, and ascending aorta 8.

Non-selective angiography

From Page 3

immediately at the conclusion of the injection. Contrast media is seen in the cranial vena cava, right atrium, right ventricle and main pulmonary artery outflow tract. Note the irregular contour of the right ventricular chamber due to the papillary muscles. The second radiograph is taken two seconds after the injection and demonstrates contrast media in the right side

of the heart as well as in the pulmonary arteries and veins, left atrium, left ventricle, and ascending aorta. The third radiograph of the series should be taken two seconds later, which demonstrates contrast media in the left atrium, ventricle and aorta. The contrast media has cleared from the right side of the heart. Note the smooth ventricular chamber of the left ventricle.

Research Day highlights new research by students

Winners in the annual research competition at the College of Veterinary Medicine included four professional students and four postdoctoral students. Research Day, April 8, is sponsored by the Phi Zeta honor society and Beecham Laboratories.

The winners in the professional student category:

First place: Khristina D. Kirkland, fourth-year veterinary student, for her project, "The *in vitro* effects of EDTA-tris, EDTA-tris-lysozyme, and antimicrobial agents on equine genital isolants of *Pseudomonas aeruginosa*." (Advisors were Drs. W.H. Fales, T.L. Blanchard, and R.S. Youngquist.)

Second place: Robert W. Engelman, fourth-year veterinary student, for his project, "Histopathology of an exophthal-

mic condition in marine fish." (Advisor was Dr. Linda L. Collier.)

Third place (tie): Gregory C. Hassel, third-year veterinary student, for his project, "Gentamicin nephrotoxicity in red-tailed hawks." (Advisors were Drs. L.P. Thornburg and J.N. Berg.) David E. Swayne, second-year veterinary student, for his project, "Photometric determination of fibrinogen levels in avian plasma." (Advisor was Dr. G. S. Johnson.)

Winners in the postdoctoral category:

First place: Dr. Bruce Janke, postdoctoral fellow in veterinary pathology, for his project, "Experimental infection of colostrum deprived neonatal pigs with a cytopathic porcine rotavirus isolate." (Advisors were Drs. L.G. Morehouse and R.F. Solorzano.)

Second place: Dr. John J. Robertson, resident veterinarian in small animal surgery, for his project, "Suprapubic subtotal prostatectomy in the dog." (Advisor was Dr. M.J. Bojrab.)

Third place (tie): Dr. Fouad K. Mohammad, graduate student in veterinary pharmacology, for his project, "Bioavailability and related clinical pharmacokinetics of intravenously administered acetaminophen in beagle dogs following orally administered N-acetylcysteine." (Advisor was Dr. V.V. St. Omer.) Dr. Jean M. d'Offay, research associate in veterinary microbiology, for his project, "Food deprivation in calves and its effects of interferon production, viral shedding and immunity." (Advisor was Dr. B. D. Rosenquist.)



Professionally speaking. . .

Dr. Franklin Loew, dean of Tufts University College of Veterinary Medicine, came to Columbia in April for a two-day stay as a visiting lecturer and Phi Zeta Research Day judge. Dr. Loew spoke of animal rights from a researcher's point of view in his talk, "Animals in Research: The Issues and Politics." As the keynote speaker for the Phi Zeta Research Day banquet, Dr. Loew focused on the veterinarian's role in comparative medicine.

Don Connor photo

Phi Zeta adds 25 new members to rolls

Twenty-five students and faculty were elected recently to membership in Phi Zeta, the scholastic honor society for veterinary medicine. New members are: Dr. Lionel Dawson, resident veterinarian in the Department of Veterinary Medicine and Surgery; Dr. Ronald McLaughlin, director of Laboratory Animal Medicine at the UMC Health Sciences Center; fourth-year students Ronald Armstrong, Michael Boyd, Stephen Callahan, Nancy Campbell, Douglas Cleveland, Richard Davis, Reed Dimmitt, Robert Engelman, Bennett Fagin, Khristina Kirkland, Frank Lenzenhuber, Christopher Kent Pieper, Marc Ross, James Schuessler, and Jenifer Whiteside; and third-year students Stanley Bladek, Beverly Bierschwal, Marvin Reidlinger, Bruce Robertson, Joseph Safron, Roger Dustan Sarazan, B. Kirk Stringer, and Mark Van Horn.

NIH funds research animal lab

Dr. Joseph Wagner has received a \$148,415 grant from the National Institutes of Health research resources division to fund operation of the Research Animal Diagnostic and Investigative Laboratory for another year. The laboratory makes differential diagnoses of diseases in research animals in order to save time and money in interpretation of research findings. It is one of three laboratories in the United States that monitors laboratory animal health for the National Cancer Institute.

Dr. Wagner is a professor of veterinary pathology at the College.

Dr. Bojrab receives AKC grant

The American Kennel Club has awarded a \$3,500 grant to Dr. M. J. Bojrab for his six-month research project, "Use of Isobutyl-cyanoacrylate Tissue Adhesive in Fixation of Small Cortical Bone Fragments."

Dr. Bojrab teaches small animal surgery at the college.

Faculty update

Dr. Claud B. Chastain

Dr. Claud B. Chastain recently joined the College's Department of Veterinary Medicine & Surgery as an associate professor. He replaces Dr. John Rhoades in small animal medicine.

Dr. Chastain, 36, comes to Columbia from Iowa State University, where he taught eight of the past nine years. He also has taught at Louisiana State University and served as Taipei area veterinarian for the U.S. Air Force in Taiwan.



A graduate of the University of Missouri, Dr. Chastain holds a B.S. from the College of Agriculture and a D.V.M. from the College of Veterinary Medicine. He received his master's degree from Iowa State in 1972. He also is a Diplomate of the American College of Veterinary Internal Medicine.

Dr. Chastain received a Curator's Award while attending the University, is a member of Phi Zeta, and is listed in "Who's Who in the Midwest." He also holds memberships in the AVMA, American Academy of Veterinary Dermatologists, American Association of Veterinary Clinicians, and the American Animal Hospital Association.

Holistic veterinarians form new association

A new group dedicated to non-allopathic approaches in veterinary medicine was formed during last winter's Intermountain Veterinary Medical Association meeting.

The American Veterinary Holistic Medical Association will explore such treatment avenues as clinical nutrition, homeopathy and herbal medicine. For further information, contact Dr. Carvel G. Tiekert, AVHMA corresponding secretary, 2214 Old Emmorton Road, Bel Air, Maryland 21014.

1981 donors to the College of Veterinary Medicine

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Morehouse	110	Dr. Frank J. O'Connell (52)	125	John S. Woodward (65)	100
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				Dr. & Mrs. Gene M. Zinn	100

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