Featured Department: Department of Veterinary Obstetrics and Radiology

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FEATURED DEPARTMENT

Department of Veterinary Obstetrics and Radiology

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SINCE THERE ARE TWO specialties represented in the Department of Obstetrics and Radiology, and since the interests of readers vary, this article will be divided into Obstetrics and Radiology to conserve the time of those interested in one or the other. Under each of these two headings will be discussed a brief historical background, personnel, pedagogical activities, equipment and facilities, research and plans for the future.

Obstetrics

The first course in obstetrics was taught in 1898 by Dr. W. B. Niles. Between this date and the creation of a Department of Obstetrics in 1930, the course work was taught by Drs. J. J. Repp, Carl W. Gay, Fred R. Ahlers, R. R. Dykstra, Harold E. Bemis, H. S. Murphey, W. F. Guard, and F. E. Walsh. Dr. F. E. Walsh became the first Professor and Head of the Department of Obstetrics, which position he held until his death in 1943. In 1944, Dr. M. A. Emmerson was appointed Professor and Head of the Department of Obstetrics (Fig. 1). Between 1944 and 1951, when Dr. Herbert W. Reuber (Fig. 2) became an instructor and later Assistant Professor of Veterinary Obstetrics, Drs. Greg Raps, L. C. Payne, David O. Jones, and William A. Greene served as instructors. At the present time, Drs. Emmerson and Reuber comprise the staff of the department.

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The department has four pedagogical responsibilities; (1) undergraduate instruction (2) graduate instruction (3) research in obstetrical problems (4) care of the obstetrical patients in the Stange Memorial Clinic and the college herds and flocks.

The equipment and facilities of the obstetrics department consist of the usual found in most veterinary schools. Most of the practical teaching is done on clinic patients in Stange Memorial Clinic. The department has two teaching aids which are
rather unique. For junior obstetrics, two obstetrical phantoms or manikins (Fig. 3) were constructed in 1945. Almost term bovine fetuses obtained from nearby meat packing plants are placed in the phantoms in the various presentations, positions and postures and each student has an opportunity to diagnose the particular dystocia being studied. The rubber uterus is opened at the end of the class period and the students observe the correct method of overcoming the dystocia. Embryotomies can be performed in the obstetrical phantoms. For senior obstetrics, a herd of 19 cows and a bull are maintained in the cattle wing of the clinic. These animals are used in teaching the diseases of reproduction. All of the cows are examined at least once a week and either pregnancy or the cause of infertility is diagnosed. Methods of overcoming the infertility are discussed and occasionally carried out. Artificial insemination is used to check the effectiveness of the treatment of the infertile cows. The senior class is divided into three groups, each group takes the sterility course for one quarter.

Most of the research in the department is done by staff members or graduate students working for a Master of Science degree. Thus far, three graduate students have obtained M. S. degrees in obstetrics. A fourth will receive his degree at the end of the first summer session.

One plan for the future is about to be realized with the remodelling of the North Military Stables into a laboratory for obstetrics. (Fig. 4). The laboratory will house the obstetrics teaching herd, a large laboratory for teaching both junior and senior obstetrics, a research laboratory for advanced undergraduate and graduate students, facilities for research by staff members, and stall space for maintaining and caring for experimental animals. There will also be facilities for feed storage, student lockers and showers, and a moderately well-equipped milk room. (Fig. 5).

A maternity stall with elevated floor, good lighting and a drop panel around three sides will permit observation of the normal birth act in the mare, cow, ewe, goat and sow. It is visualized that the facilities of the Laboratory for Obstetrics will provide the opportunity for research work of a meritorious nature in obstetrics, sterility, and diseases of the newborn.

Radiology

In 1945, the first course in veterinary radiology was taught in the Division of Veterinary Medicine, Iowa State College, by Dr. M. A. Emmerson, Professor and Head, Department of Obstetrics. From
1946 to the present time, radiology has been a 3 hour lecture, 3 credit hour course taught during the winter quarter to the senior class. Dr. H. W. Reuber assists in the clinical radiographic work. All of the teaching of radiology has been done by Dr. Emmerson.

The first mention of x-ray apparatus in the Division of Veterinary Medicine, Iowa State College, occurs in the catalog for 1918. Very little appears other than a picture of the apparatus and no formal course work in radiology was given. Sometime between 1928 and 1929 an old x-ray apparatus was inherited from the Physics Department and installed in the old clinic building. Very little is to be found concerning its use between 1929 and the date of occupancy of Stange Memorial Clinic in 1938. The catalog for 1939-40 mentions x-ray apparatus as being available in the new clinic building. It was a shock-proof portable General Electric Model F machine used almost exclusively for fluoroscopy by the small animal clinic staff. Radiographs were occasionally made of a large animal, but they were on the whole unsatisfactory, as the machine was not powerful enough to penetrate the parts being x-rayed.

In 1946, approximately $18,000.00 worth of new x-ray apparatus (Fig. 6) was purchased. Most of the new x-ray apparatus is pictured and described in the Iowa State College Veterinarian, Vol. XI, No. 2, pp. 66-70, 1949. With this went all of the accessories necessary to do a good job in x-ray diagnosis and treatment. Several tons of sheet lead were used to adequately protect students, faculty and clientele from unnecessary exposure to the x-rays. A special large animal hydraulic treatment table (Fig. 6) was constructed for the treatment of large animals with x-ray therapy, this table also doubles as an emergency operating table.

Since January 16, 1946, when the new equipment became available and the first x-ray picture was taken, over 8,000 radiographs of 3,461 patients have been made. It is estimated that by January 16, 1956, when the present x-ray equipment will have been used for ten years, that nearly 9,000 pictures of 4,000 patients will have been made.

There is much needed research in the field of veterinary radiology. Thus far, the major use of radiology in research has been confined to radiography which has been used as a tool or aid in other major fields. The following will give the reader some idea of the uses made of the department's facilities in this respect. (1) Dwarfism in Beef Cattle—Probably the research work of greatest interest at the moment is being carried on as a cooperative project between the Animal Husbandry Department and the Department of Obstet-
rics and Radiology. It is possible by means of radiographic studies of the lumbar vertebrae of beef calves, 3 to 7 days after birth, to detect those animals that carry the dwarf gene. Their lumbar vertebra closely resemble those of the true dwarf even though on casual observation the calves are difficult if not impossible to distinguish from the dwarf gene free individual. These findings must be correlated with the breeding results before a definite statement can be made. The geneticists in the Animal Husbandry Department are carrying on the breeding tests (genetic proof) at the Iowa State Farm, Ankeny, Iowa, while the Department of Obstetrics and Radiology is doing the radiographic classification of offspring born to the mature breeding males and females of the experimental herd. Thus far, the radiographic classifications have proven to be quite accurate and are being verified by the test breedings. This project is being partially supported by a grant from the American Hereford Breeder's Association. While this project has already been in progress for three years, it will probably continue for another two years before sufficient data is obtained to permit a positive statement as to the accuracy of this method of determining the dwarf gene carrier animal. If the trend towards accuracy continues, this should prove a valuable aid to animal husbandmen in their selection of dwarf gene free breeding stock and permit them to continue with the type and conformation so desirable as show and food producing animals.

(2) Swine Nutrition — For the past two or three years, the Animal Husbandry De-
partment has taken advantage of our facilities to add X-ray studies to their investigations of the calcium-phosphorous requirements of growing swine.

3) Canine Nutrition — Several years ago, Dr. B. H. Thomas of the Chemistry Department used our facilities to make X-ray studies of experimentally induced rickets in dogs.

4) Skeletal Changes Producing Lameness in the Horse — When Dr. Richard Olson was a member of the Department of Veterinary Surgery, the Department of Obstetrics and Radiology assisted him in his radiographic studies of skeletal changes producing lameness in horses.

5) Uterine Motility Studies in the Pregnant Bitch — Radiographs were made of mercury filled recording balloons in the uterus of the pregnant bitches for Dr. L. C. Payne, Department of Veterinary Physiology. This study has been dropped for the present.

6) Anatomical and Radiographic Observations of the Sinus Vertebrales Longitudinales of Canis Familiaris — In 1953, Dr. Robert P. Worthman of the Department of Veterinary Anatomy completed his thesis of the above title and obtained his M. S. degree. As one will see by studying the thesis or the soon to be published article, radiography played a very important role in this very fine addition to our knowledge of the vertebral vein system in the dog. In fact, some of the information could not have been obtained in any other way.

7) Experimental PPLO Arthritis in Swine — Dr. W. P. Switzer, Veterinary Medical Research Institute, Iowa State College, availed himself of our radiographic facilities in studying the arthritic syndrome associated with PPLO experimental work in swine. Dr. Switzer is now interested in using X-rays to induce the stress factor in experimental animals for him in the near future.

8) Elbow Fractures in the Dog and Their Surgical Repair — For the past year and a half, we have been making before and after radiographs of elbow fractures in the dog for Dr. Hugh Simpson, Small Animal Clinic and Department of Veterinary Medicine and Surgery. In the not
too distant future, an illustrated article on this subject will appear in one of the veterinary journals.

9) Studies on the Osteogenesis and Os­teopathia of the Ossa Tarsi of the Ox (Bos Taurus) — The Department of Veterinary Anatomy and the Department of Obstet­rics and Radiology have embarked on a joint study of the hock of the cow and bull. This has been brought about by various hock lesions in both sexes and the variations in the radiographic appearance of the normal and diseased patients thus far observed. It is hoped that this study will prove to be of great value to the veterinary radiologist.

Thus it can be seen, that while no spe­cific major radiological problems are in­volved, still radiography is proving a val­uable approach to the study of various an­imal production problems. When and if time and personnel become available in the Department of Obstetrics and Radiology, efforts will be made to supply the much needed information along two lines — (a) Variations in the Skin Tolerance of our Various Domestic Animals to x-ray Therapy and (b) Radiographic Technic Charts for the Various Domestic Animals and Birds.

In the future, the Department of Obstet­rics and Radiology hopes to accomplish two things to enhance its teaching and service to students and clientele. (a) Improve the teaching of veterinary radiology by obtaining facilities and equipment deemed necessary. For the former, a special classroom capable of being darkened and well ventilated is needed for classes in radiographic interpre­tation and for teaching fluros­copy. For the latter, an additional staff member and another radiographic unit is needed to permit each senior veterinary student to take, process and interpret one or more radiographs on experimental animals. The course will have to be extended whenever the demand for training in Roentgen therapy is made by the student body.

(b) Install the most powerful (500 Ma, 500 KvP) radiographic unit in the world, if possible, and special supplemental fa­cilities such as 17" x 24" cassettes, intensifying screens, film developing hangers (the developing tanks now in use were de­signed and built with this future plan in mind) and a 17" x 24" reciprocating Pot­ter Bucky Diaphram and Special radiographic stocks to make it possible to ra­diograph those parts of mature horses and cows, that cannot now be done because of insufficient penetration and speed of exposure.

* Clinical
(Continued from page 168)

Microscopic examination of the sec­tion showed Habronema sp. larvae in the tissue.

The Habronema is a stomach nematode of the horse. The eggs of the parasite pass out with the feces. The embryo forms are consumed by larvae of flies, commonly Musca domestica, that breed in the man­ure. The adult fly, still harboring the para­site, will reinfect horses by depositing the infective larvae on the lips of the horse. If the larvae are deposited in a wound, they prevent healing by stimulat­ing formation of excessive granulation tissue, as in the case of this patient.

The patient was given 30 Gm. of Chloral Hydrate orally. The granulation tissue was removed surgically.

After care consisted of daily irrigation with 1:5,000 dilution of Potassium Per­manganate and dusting the wound with Iron Subsulfate.

The patient was discharged Sept. 3, 1954 with the wound healing nicely and with a favorable prognosis.

Don Lyon ’56

Iowa State College Veterinarian