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The Iowa Veterinary Diagnostic Laboratory

Carl Jacobsen*

Since 1892, veterinary diagnostic service has been offered to Iowa veterinarians by the Iowa State College of Veterinary Medicine. From that date, just 13 years after the founding of the division, until 1946, the service was provided by the Department of Pathology. In order to meet the increasing demand for this service, the Iowa Veterinary Diagnostic Laboratory was established in 1946 as a separate department of the Division of Veterinary Medicine, with its own personnel. Since 1927, the Diagnostic Laboratory has been in the northeast wing of the veterinary quadrangle. At present, plans are underway for the construction of a large new diagnostic laboratory to provide more space and equipment for the present staff of five veterinarians and three technicians.

The work now done by the diagnostic laboratory, among other things, covers almost the entire field of known North American bacterial and viral diseases. The list of encountered diseases extends from anthrax to "X" disease. Almost daily, animals suspected of rabies are brought in (194 positive diagnoses in 1950); portions of their brains are examined microscopically for the diagnostic Negri bodies. If none are found, mice are inoculated intracranially.

Newcastle disease, infectious bronchitis, and infectious laryngotracheitis viruses each produce diagnostic results upon embryos. Embryonic tissue fluids can further be checked against specific anti-sera for the presence and identity of the viruses. In 1950, 593 cases of Newcastle disease, 42 cases of infectious laryngotracheitis, and 119 cases of infectious bronchitis were diagnosed.

Swine erysipelas, hog cholera, salmonellosis, pasteurellosis and streptococcal infections are only a few of the many diseases confronting swine practitioners that are routinely diagnosed in the laboratory. The diagnoses in these diseases are largely based upon necropsy and bacteriological findings. Careful interpretation of results is necessary to get an accurate diagnosis in all of these diseases. This is especially so in those disorders caused by some viruses or agents which are less known and even less understood, such as; hog cholera, infectious gastroenteritis of baby pigs, gastric edema of swine, and certain pneumonias.

Aborted fetuses from cows and sows are submitted by many practitioners and often cultures and smears from the fetal stomach contents reveal the organism

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that caused the abortion, thus giving the veterinarian a basis for an accurate prognosis, treatment or control of the herd's problem.

Tumorous tissues are sectioned and classified as a part of this same service. The above examples may serve as an indication of the type of service provided by the Iowa Veterinary Diagnostic Laboratory. Actually, it is only a listing of a fraction of the many diseases and problems that they are capable of, and do, handle. Small laboratory animals are always available for feeding trials in food poisoning suspects, and other toxicity tests. Serological work is handled in great volume by the laboratory (75,800 bovine brucellosis tests in 1950). The Federal Tuberculosis and Brucellosis Eradication Laboratory handles these tests in conjunction with the diagnostic laboratory, as is done in many states. In addition, since 1938, the laboratory has instructed four senior veterinary students each week.

Unfortunately, facilities are not available for any extensive chemical analyses. This is a definite handicap at times, and it is hoped that the forthcoming expansion will relieve this.

For the most efficient service, two or more representative animals, freshly dead or very sick, should be selected. The shipping of specimens to the laboratory is discouraged because time and temperatures en route often lead to excessive decomposition. Any shipped specimen should be packed in a water-tight container, and this in turn packed in ice, to be very satisfactory. Another factor which makes shipping specimens less desirable is the lack of sufficient history on the case. By far the best method is to privately deliver the specimens to the laboratory accompanied by a detailed, complete history.

The average time required for the forwarding of a diagnosis on most of the common bacterial diseases is about 5 days, depending upon the speed of bacterial growth and the cultural difficulties encountered. Many require less time. For instance, swine erysipelas can often be identified in less than 24 hours. This is also true of some streptococci, corynebacteria, and the results from positive hemagglutination-inhibition tests. Others may range up to 3 weeks; as for negative diagnoses in rabies; and up to 6 weeks for diagnoses based on tissue sections. As a rule, the results are forwarded to the veterinarian by mail, but if urgency demands it, the results are telephoned.

Colt Castration

Formston, of the Royal Veterinary College in England, advocates the emasculation of male colts when they are only 6 to 14 weeks of age rather than waiting until they are yearlings or 2-year-olds. At this youthful age, he anesthetizes them easily in the standing position with a dram of chloroform on a cotton pledget in a mask, allowing only limited air. In 6 minutes, they go down and are then restrained by mechanical means. The surgery is careful, although it differs from the usual methods employed here, in that the vascular cord is ligated with chromic catgut, and the skin incision is closed with the same suture material. This humane surgery, the careful technic, and the ease of handling; minimizing shock, and hastening healing without complications, are worthy of emulation everywhere.

Observations made in Italy on the fertility of bulls, as judged by semen examination, have added scientific substantiation to common knowledge among breeders that periods of greatest cold and heat are those of lowest fertility. These observations were made after extensive studies on 4,780 dairy cows.

The Illinois Department of Public Health has taken a big step forward in the control and eradication of brucellosis. To assist the progressive dairy herd owners in protecting the health of the people of Illinois, the Department will require that all Grade A milk must be produced by brucella-free herds after January 1, 1955.