minants. I have tried increasing the amount of antifungal antibiotic in the culture medium but have found that saprophytic fungi isolated from Fungassay medium have a tolerance to cycloheximide similar to the dermatophytes. The only practical way to exclude these contaminants is to observe the precautions listed above.

There is considerable variation in the shade of red observed in Fungassay cultures. Some clinicians consider that a deep wine colour is indicative of a dermatophyte. This is not necessarily true. A wine red colour is produced rapidly by cultures of *M. canis*, *T. metagrophytes* and T. *gypseum*, but the same shade is found in cultures of *Chrysosporium* sp. and some isolates of the most common contaminant, *Alternaria alternata*. Conversely, some strains of *M. canis* and *M. equinum* may diffuse such intense yellow pigment into the medium that the DTM merely appears light orange. Almost all fungal cultures, if kept long enough, will turn DTM red by releasing products of autolysis.

Correspondents to the Veterinary Record in the United Kingdom have recently complained about poor diagnostic techniques for the identification of ringworm fungi in that country. Wright and Allingham (2) have pointed out that ringworm is actually quite uncommon in dogs (only 9.4% out of 766 suspected cases proving positive) and only slightly more common in cats (19.1% of 356 cases being confirmed). If the sample reported on here is representative it seems probable that in this country more dermatological disorders in small animals are being treated for ringworm than are actually caused by fungal infections, and I hope these comments will help to make the use of DTM a more precise diagnostic test.

Yours truly,

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Ovine Abortion due to Chlamydia in Ontario

DEAR SIR:

The first flock outbreak of ovine chlamydia abortion in Canada was recently reported from Alberta (1). We hereby inform your readers of an outbreak in Ontario.

Four aborted ovine fetuses were submitted for diagnosis in March 1977 from a flock of 375 ewes in Grey county. One fetus was macerated, one was badly autolyzed and the other two (twins) were partially enclosed in their placenta. There was severe placentitis involving some cotyledons and patches of intercotyledonary placenta. Both lambs were freshly dead. They had enlarged livers, containing small gray flecks, and copious ascitic fluid with fibrin strands. A gross diagnosis of "vibrionic" (*Campylobacter*) abortion was made and placenta, lung, liver, spleen and abomasal content were submitted for bacteriological examination. No significant organisms were recovered.

Fetal and placental tissues were fixed and stained using routing histopathological methods. Lesions were very similar to those described from Alberta (1). There was severe placentitis characterized by necrosis and inflammation and by vasculitis. Reticuloendothelial cell accumulations in the liver and persistence of hepatic hemopoiesis were also prominent.

Failure to demonstrate any significant bacterial agent, plus the characteristic histopathological changes made us suspect chlamydia abortion; the subsequent demonstration of acid-fast bodies in chorionic epithelium strengthened our suspicions.

Further specimens were solicited and in April 1977 we received two placentas, two fetuses (unrelated to the placentas), a freshly dead ewe that had aborted two weeks previously and seven blood samples from aborting ewes. Convalescent samples were also received in May 1977. There was severe placentitis, but no significant fetal lesions were seen. The ewe had a retained placenta with metritis and peritonitis.

Other than an isolation of *C. pyogenes* from the metritis, bacteriological results were insignificant.

Both placentas, lung, liver and spleen from both fetuses, ileum, mesenteric node and retained placenta from the ewe were inoculated into

embryonating eggs. A chlamydia agent was isolated from both placentas and one fetal spleen.

Chlamydia organisms were best demonstrated using a variation of the modified Koster's stain (2) which utilized ten minute staining in step one and one percent aqueous methylene blue in step five.

Results of complement fixation tests for chlamydia antibody are shown in the Table I.

TABLE I

COMPLEMENT FIXATION TITRES TO CHLAMYDIA ANTIGEN IN ABORTING EWES

Sheep No.	April 1977	May 1977
595	1:32	N.D.[a]
695	N.D.	1:32
701	N.D.	1:64
702	1:64	N.D.
738	1:16	1:32
739	1:64	N.D.
744	1:32	1:64
754	1:64	1:128
755	N.D.	1:64
763	1:16	1:16

[a]N.D.—Not done.

We thank l'Institut Armand-Frappier, Laval, Quebec for performing the complement fixation tests. We also thank the owners of this flock and Doctors E. M. and J. A. Mitchell and L. F. Wieringa of the Markdale Veterinary Services for their willing cooperation in investigating the outbreak.

Three further outbreaks of chlamydia abortion in the Markdale area have been diagnosed at our laboratory in 1978.

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BOOK REVIEW

Veterinary Neuroanatomy and Clinical Neurology. Alexander de Lahunta. Published by W. B. Saunders Company, Philadelphia, London, Toronto. 1977. 439 pages. Price $20.55.

This book represents a significant advance in its approach to veterinary neurology. On perusal of the text, the student or clinician should not be discouraged by the neuroanatomical detail. The author explains that his primary objective is to teach the morphologic and physiologic features of the nervous system in order to provide a basis for diagnosing and locating lesions that occur in the nervous system. For the clinician and his client, an accurate diagnosis and prognosis of a nervous disorder is paramount rather than the therapeutic possibilities when one considers the limited regenerative capacity of the nervous system.

The first 12 chapters include the embryological development and the functional organization of the nervous system of importance in domestic animals. The appendix contains 16 cross-sections of the dog brain for reference to regional neuroanatomy. Chapter three is an excellent treatise on normal cerebrospinal fluid circulation and abnormalities. There is a precise description of the methods of collection of spinal fluid from small animals and the horse, in addition to recent data on cerebrospinal fluid paramenters in health and disease. The book is amply illustrated with practical and accurate diagrams of neuroanatomy pertinent to the understanding of diagnostic neurology. In each chapter that describes the functional organization of the nervous system, the author explains the applicable neurologic tests and disease states that affect that function. The concept of upper and lower motor neuron disease is well illustrated and discussed.

For a synopsis of clinical diagnostic information, the reader should refer to those chapters entitled Seizures-convulsions, Spinal cord diseases, Diagnosis and evaluation of traumatic lesions of the nervous system, Small animal and equine neurologic examinations. The final chapter is devoted to 12 case descriptions which illustrate the practical application of the material presented previously. These are actual cases complete with history, neurologic examination findings, neuroanatomic diagnosis, differential diagnosis, ancillary diagnostic aids, and necropsy results which correlate with the clinical data.

Throughout the text, numerous examples of specific disease entities and diagnostic features are outlined. For additional information on any subject in the book, the reader can refer to the complete and current bibliography accompanying each chapter.

In summary, Professor de Lahunta has produced an outstanding text on veterinary neurology that will be invaluable not only to the veterinary student but also the to practitioner and instructors of neuroanatomy, clinical neurology and neuropathology. It should become a classic of veterinary literature. *L. L. Smith.*