

1943

## Abstracts

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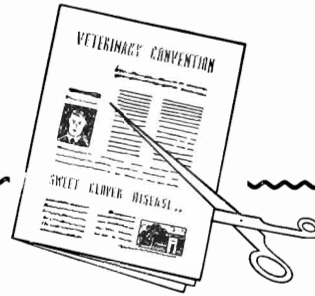
### Recommended Citation

(1943) "Abstracts," *Iowa State University Veterinarian*: Vol. 6 : Iss. 2 , Article 16.

Available at: [http://lib.dr.iastate.edu/iowastate\\_veterinarian/vol6/iss2/16](http://lib.dr.iastate.edu/iowastate_veterinarian/vol6/iss2/16)

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# ABSTRACTS



**SULFONAMIDE THERAPY IN ACTINOMYCOTIC INFECTIONS.** The occasional occurrence of actinomycosis in man has prompted a search for the most effective treatment of the condition. Although the number of clinical cases may not be increasing, more accurate diagnoses may cause such to appear to be the case. It is occasionally confused with the diagnosis of tuberculosis because of the marked similarity to the disease and the difficulty in distinguishing the acid fast mycelial fragments from the tubercle bacilli. The non-acid fast group is more commonly encountered in pus and is more apt to be confused with the diphtheroids. Apparently actinobacillosis is very rare in man.

The popularity of iodides in the treatment of actinomycosis resulted from the success of iodide therapy in the veterinary control of an infection of the subcutaneous tissues of the neck of cattle due to the actinobacillus organism. The ineffectiveness of potassium iodide in true actinomycosis in man is now quite generally recognized.

A number of cases were presented to the Massachusetts General Hospital in Boston where the program of treatment combined drainage of pus, excision of infected tissue, and long continued sulfonamide therapy. Several cases were discussed to emphasize the necessity for long and continuous sulfonamide administration to effect healing and maintain remission of the disease. In every instance clinical improvement was noted within the first three weeks of the sulfonamide treatment. This improvement was not

maintained unless the sulfonamide was continued for a considerably longer period of time. Numerous cases are on record where intermittent therapy and premature omission of the drug have been followed by death. The drugs induce a remission and apparently diminish the intensity of the recurrence but it hardly can be claimed that the disease has been completely cured. The inference as to the necessity of surgical excision of the infection is clear.

*(Lyons, Champ, Owen, Cora R., and Ayers, William B. 1943. Sulfonamide therapy in actinomycotic infections. Surgery. 14(1): 99-104)*

**NERVOUS DISTEMPER IN DOGS.** From the brains of dogs showing degeneration and suffering clinically from "nervous distemper" a virus has been isolated which is identical in behavior with the virus of canine distemper. The lesions of the distemper tend to localize in certain restricted areas of the cerebellum and brain stem.

It has been shown in fatal infections with known distemper virus, sometimes in the absence of nervous symptoms, early demyelinating lesions may be present in some areas commonly affected in "nervous distemper." In both groups the same type of inclusion body may be present.

There is some evidence of cross-immunity between the agent of "nervous distemper" and canine distemper virus. Anti-distemper serum neutralizes the pathogenic agent present in cases of the above condition.

It should be concluded that the cause

of "nervous distemper" is the distemper virus itself, and the demyelinating lesions produced by it represent damage to the white matter short of necrosis. Apparently this virus has a particular affinity for the cells of the white matter of the brain.

(Hurst, F. Weston, Cooke, B. T., and Melvin, P. 1943. "Nervous distemper" in dogs. *The Australian Jour. of Exp. Bio. and Med. Sci.* 21(2):115-125.)

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**ACTION OF ANTIBACTERIAL MOULD PRODUCTS.** In addition to penicillin, a variety of antibacterial agents have been obtained from cultures of *Penicillium notatum*. Of these, the more noted are considered to be penatin, penicillin B, and notatin. It is found that the antibacterial effect of these mould products is due to the hydrogen peroxide produced by them.

Their enzymes produce hydrogen peroxide continuously and at a constant rate as long as glucose is available in excess. It is noted that concentrations as low as 0.0003 per cent hydrogen peroxide delays bacterial growth. From 0.0027 per cent hydrogen peroxide and higher, the action is bactericidal to *Staphylococcus aureus*, 5000 organisms per milliliter.

It is perhaps unjustifiable to postulate the hypothesis that under proper conditions any enzyme which will react with a substrate and produce hydrogen peroxide should prevent bacterial growth.

(Schales, Otto. 1943. *Mode of action of some antibacterial mould products.* *Arch. of Biochemistry.* 2(3):487-490.)

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**VITAMINS IN THE REGENERATION OF BLOOD.** Dogs were kept on a highly purified synthetic ration supplemented only with the crystalline B vitamins, exclusive of riboflavin. Blood analyses were carried out at various levels of riboflavin feeding, with and without phlebotomy. The rate of regeneration of blood in this experiment is as follows:

The food consumption was poor and ir-

regular in a deficiency of riboflavin and typical symptoms were observed. Thirty gammas per kg. of body weight daily was the minimal level for good food consumption and growth in young dogs. In adult dogs, 15 gammas may be sufficient for maintenance of body weight.

A mild anemia developed on a synthetic ration without riboflavin and a severe anemia was readily induced with slight bleeding. The dogs did not recover from this anemia unless riboflavin was fed in the amounts referred to above.

An adult dog can maintain a normal hemoglobin level under strain of phlebotomy with 15 gammas per kg. of body weight daily. The hematopoietic response in growing dogs on 30 gammas per kilo daily was not sufficient to replace the blood removed.

In absence of riboflavin a microcytic hypochromic type of anemia was produced. During phlebotomy with riboflavin feeding there was a normocytic, hypochromic type of anemia. Thus riboflavin also plays a role in determining the size of new blood cells.

(Spector, H., Maass, A. R., Michaud, L., Elvehjem, C. A., and Hart, F. B. 1943. *Role of riboflavin in blood regeneration.* *Jour. Biol. Chem.* 150(1):75-86.)

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### THE EFFECT OF SULFAPYRIDINE UPON BRUCELLOSIS IN CATTLE.

In controlled experiments sulfapyridine was studied by administering the drug to 6 cows known to eliminate *Brucella abortus* in their milk. The length of treatment periods varied from 11 to 42 days. The dosage of sulfapyridine was 7 gm. per 100 pounds body weight daily during the first week, 5 gm. per 100 pounds daily the second week, and 4 gm. per 100 pounds body weight thereafter. Maximum concentrations of free sulfapyridine were attained during the first week of treatment and ranged from 8 to 18 mg. per 100 cc. of blood.

All cows developed anorexia, fever and leucopenia during the course of the treatment. Two cows developed inflammatory

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nodules on the teats and udder. Three cows suffered leg weakness and urticaria. One cow showed a slight icterus two days after the treatment was discontinued. The sulfapyridine had a bacteriostatic effect on the *Brucella* as shown by the decrease in the number of organisms isolated from the milk and their total absence during treatment and shortly after. *Br. abortus* was isolated from the milk of all cows concerned after treatment was discontinued. Thus it must be assumed that the treatment with sulfapyridine did not have the desired chemotherapeutic effect on brucellosis in cattle.

(Live, I., Stubbs, E. L., and Gardiner, M. R. Jr. 1943. Effect of sulfapyridine on cows known to eliminate *Brucella abortus* in the milk. *Amer. Jour. of Vet. Res.* 4(12): 276-286.)

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**R**ESISTANCE OF *OESOPHAGOSTOMUM COLUMBIANUM*. A pasture at Beltsville, Maryland was exposed over a period of nearly 6 months in 1940 to contamination with sheep feces containing a calculated total of 89,500,000 *Oesophagostomum columbianum* ova. Two clean lambs grazed upon the same pasture for 2 weeks the following June after the pasture had not been grazed from November till May; they failed to become infected with nodular worms. The overwintering loss of nodular worm larvae occurred on a closely cropped pasture during a normal winter and an abnormally dry spring.

It is concluded that in a region of Beltsville, Maryland, and areas having similar or more rigorous winters, the perpetuation of nodular worm infection in sheep flocks from year to year is due to the persistence of adult worms in the intestine of breeding sheep rather than the survival of free-living stages of the parasite in pastures.

For the control of nodular worm infection in sheep it is recommended that pastures be rested during the winter and all

breeding stock receive anthelmintic treatment in the winter or spring before going on pasture. This method of control should prove effective in northern states and should help control other intestinal nematodes.

(Sarles, M. P. 1943. Overwintering loss of nodular worm larvae from a sheep pasture and its bearing on the control of nodular worm disease. *Jour. of Parasitology.* 29(4):263-269.)

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## VARIATION OF BRUCELLA ABORTUS IN RAW MILKS.

The causal organism, *Brucella abortus*, besides invading the vagina and uterus, frequently gives rise to a mild form of mastitis and is then eliminated in the milk.

During the examination of two series of raw milk for tubercle bacilli, one in Liverpool extending over a period of seven months and one in Kent extending for one year, the testing for the presence of *Br. abortus* was undertaken at the same time. All milk samples were from untreated bulk supplies. It is found that there is a considerable variation from month to month in the percentage of milk found to be infected with *Br. abortus*. There seems to be a rapid increase in the number of infected milk samples commencing about October and reaching a maximum about January; the number decreases to a minimum about August.

It is known that abortion in cattle tends to increase toward the latter part of the year. Thus the factors favoring the dissemination of the causal organisms are increased and the results are reflected in the increased prevalence of infected milk during this period.

(Jones, F. R. 1943. Seasonal variation in the incidence of *Brucella abortus* in raw milks. *Jour. of Pathology and Bacteriology* 15(3):357-362.)

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Foxes and most other fur bearing animals will not tolerate morphine. The reaction shown by such animals is much the same as that shown by cats. Barbitol and its derivatives may be used successfully where an anesthetic is indicated.