

ACTIVITIES OF THE BUREAU OF ANIMAL INDUSTRY  
LABORATORIES IN WASHINGTON

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Zoological Division

The routine work of the Zoological Division includes the identification of parasites of livestock and man, also those of wild animals, in this and from other parts of the world. The Division examines fecal samples, skin scrapings, etc., for the presence of parasites. It covers the usual work of furnishing information in regard to diagnosis, treatment and prevention of parasitic diseases. The larger part of its work consists in investigations of parasites and parasitic diseases, and it recommends measures for prevention and treatment. The parasites are studied from the standpoint of their morphology, life history, distribution and classification. The diseases caused by parasites are studied with reference to their pathology, symptoms, diagnosis and treatment or prevention.

The maintenance of an index-catalog dealing with all parasites reported from all hosts in any part of the world is a project which has attracted much attention and is recognized to be superior to any catalog of a like nature to be found anywhere. The parasite collection is regarded as part of the National Museum collection, which is the largest and most valuable in the world.

Important findings have been recorded regarding stomach worms of sheep, ascarids of swine, stomach worms of horses and gape worms of poultry.

Control measures are developed for combating or preventing such diseases as trichinosis and cysticercosis. Anthelmintics have been studied and treatments developed for many worms of the digestive tract of the horse and dog and for the more important worms of sheep, goats, swine and poultry. The Zoological Division also gives special attention to the study of parasitic diseases that affect livestock in the South, as apparently there is great need for such work on account of increased livestock following tick eradication.

Seventy-five years of progress in Veterinary Medicine

Outstanding Achievements in Review p. 99 8 Parasitology only. 31 total

Proof that certain diseases can be carried from one animal to another only by an intermediate insect host.

Discovery of the nature of tick fever leading to a successful method of eradicating cattle ticks.

Discovery of a new and effective remedy for hookworm in dogs which has been used successfully on millions of people.

Development of methods of preventing losses from roundworms and kidney worms of swine.

Success in destroying trichinae in pork by refrigeration.

Development of effective dips and disinfectants.

Means of testing the strength of dips in vats.

Eradication of scabies of cattle and sheep from extensive areas.

Presented at the Diamond Jubilee of the A.V.M.A.

JAVMA 93 ns. V. 46. (2):98-104

Mohler, J.R. 1938 - 75 Years of Progress in Veterinary Medicine. JAVMA 93 ns 46(2)98-104.

Hassall, Albert, M.R.C.V.S. Veterinary Inspector and Assistant Zoologist, was appointed ~~May~~ May 24, 1887 and stationed in Baltimore; on March 7, 1891, was transferred to Washington and assigned to duty in the zoological laboratory.

Taylor, Miss Louise, Scientific Assistant, of Youngstown, Ohio, was appointed in the Pathological Division of the Bureau, April 8, 1897, afterwards passing the civil service examination and receiving regular appointment; was given leave of absence from September 30, 1899 to August 14, 1900, and on her return was assigned to duty in the Zoological Laboratory.

Oberly, Eunice R. Clerk, appointed August 25, 1900. Century Souvenir book (1901).

Houck, 1924. p56. A study of verminous bronchitis of calves <sup>(in 1884)</sup> and gape disease of fowls was begun by the Bureau in 1885. (1885)

#### Texas Fever p. 56

Dr. Smith, in the course of experiments ranging from 1886 to 1891, discovered and proved that the causative agent of Texas fever is a microscopic protozoan parasite which attacks the red blood corpuscles. In 1889, Dr. F. L. Kilburn obtained the first evidence by experiment that the disease was carried from animal to animal by cattle ticks and furthermore, that southern cattle from which the ticks had all been removed were quite harmless if placed in contact with susceptible northern cattle.

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It is interesting to note that discoveries made by the Bureau at the Experiment Station furnished the first experimental proof that some infectious diseases are carried from victim to victim only through the activities of an intermediate host of their causative microparasites. This mode of spreading protozoan infection has since become quite familiar to the public by the discovery that certain species of mosquitoes spread malaria and yellow fever to man and that the tsetse fly may transmit to man the infection of sleeping sickness.

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Some attention was given to the laboratory study of parasitic diseases of livestock in the early days of the Bureau, but investigations seem to have been chiefly centered upon pleuropneumonia, swine diseases and Texas fever. A careful microscopic survey of pork products for trichinae was made in Chicago for the Bureau by Dr. H.J. Detmers, and numerous samples of pork were examined in Washington by Dr. Smith, in addition to which similar inspections were conducted by Dr. F.S. Billings in Boston, Dr. Deveron in New Orleans, Dr. Simpson in Atlanta, and Drs. Osler and Clements in Montreal. As a result of these investigations it was found that about 2 percent of the hogs from certain sections were infested with Trichinae, while the hogs in some States were quite free of these parasites.

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About 130 horses belonging to officers of the Army were held in quarantine at Newport News, Va. on August 31, 1919, when they returned to this country from overseas service. Complement-fixation tests of the blood of these animals revealed the presence of trypanosomiasis in one horse, The animal was destroyed and the diagnosis was confirmed by post-mortem examination.

In 1923, an important <sup>107</sup> of camels were found to have trypanosomes of a species as yet unidentified. The animals originated in India, from which country they came only a few months before.

In 1903(4) Dr. John R. Mohler was sent to the National Veterinary School at Alfort, France, to make a thorough study of dourine and the methods of combating it. He brought back a dog that had been infected with the protozoan Trypanosoma equiperdum, obtained from a horse with dourine. Did not make a satisfactory vaccine or immunizing material from cultures of this organism.

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It was reported to the Bureau in the fall of 1893 that infectious entero-hepatitis (Blackhead) was destroying many turkeys in New England. Dr. Smith made an investigation of this disease that led to the discovery by him in 1894 of a minute parasite in the internal organs of the affected turkeys which he demonstrated to be the cause of the disease and named it Amoeba meleagridis. Also interested in the animals at the National Zoo.

Houck, 1924 p. 75-6.

Coccidiosis is another disease which causes heavy losses of chicks between three and eight weeks old. This disease was investigated by the Pathological Division during the year 1907 and found to be caused by a protozoan organism named *Eimeria avium*

A malady, designated, "Quail Disease" was first studied by the Bureau during the year 1906. A further study of this disease in birds from Mexican origin in the spring of 1920 disclosed the fact that a coccidium is a causative agent in the production of this disease. It was found that recovered quail remain carriers of the organism and that fowls are not susceptible to this species of coccidium.

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In 1916 a study was made of an outbreak of a fatal disease among the monkeys at the National Zoological Park. The disease occurred among a group of spider monkeys. Eight of the nine which became affected died of dysentery. Protozoan organisms having the general structure and characteristics of the amoeba generally considered the causative agent of human, "tropical dysentery" were isolated from the diseased animals.

An infection of cattle known as coccidioid granuloma was observed and studied in 1918. Natural infection of the bronchial and mediastinal lymph glands was determined, and the causative parasite recovered.

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(in summary) 1893 Blackhead in turkeys was investigated by Dr. Theobald Smith.