

HISTORY OF THE SWINE PARASITE WORK IN SOUTH GEORGIA AND
THE ANIMAL PARASITE RESEARCH LABORATORY
TIFTON, GEORGIA ^{1/}

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1925-1974

Sometime prior to March 1, 1925, personnel ^{2/} of the Zoological Division, Bureau of Animal Industry, had informal discussions with Mr. Horace MacDowell of Swift and Company, at Moultrie, Georgia, about the possibility of establishing a laboratory for the investigation of methods for the control of swine parasites which were causing considerable economic loss to the farmers of the Coastal Plain Region. Mr. B. L. Southwell took part in some of these early discussions.

As a result of these talks, Swift and Company agreed to build a laboratory and to cooperate with the Bureau in carrying out this work.

On March 1, 1925, Mr. J. W. Connelly, who had been working on the Swine Sanitation Project in McLean County, Illinois, was transferred to Moultrie. He was to assist in the application of the principles that had been successful in controlling large roundworms and other parasites of swine in Illinois to south Georgia farms. In July 1925, Dr. E. M. Nighbert was transferred to Moultrie from Queen City, Missouri, where he had been working on sheep parasites, to take over direction of the work.

The work of the Moultrie laboratory at this time consisted of contacting farmers in the area, investigating the prevalence of swine parasites, performing necropsies on selected swine, identifying the parasites encountered and preparing for later cooperative work with farmers.

Dr. Nighbert and Mr. Connelly may first have occupied an office in the Post Office building in the center of town. However, when the laboratory was completed by Swift and Company in 1926 they moved to the new location which was on the grounds of the packing plant where route 319 enters Moultrie from the north.

^{1/} Most of the details of events prior to 1953 were provided by Drs. Andrews and Spindler. Mr. Southwell, Drs. Schwartz, Porter, Swanson and Kates reviewed the original manuscript and made valuable suggestions.

^{2/} There is some doubt as to whom, however it was probably Dr. B. H. Ransom, Chief of the Zoological Division. Dr. M. C. Hall, Assistant Chief, may have been involved also.

The cooperative experimental work on swine parasite control was started in July 1926 on a farm owned by Mr. W. W. King, Doerun, Georgia. Mr. King was paid \$50 per month for managing a portion of his herd of purebred Duroc Jersey swine in accordance with whatever scheme the Bureau desired to have tested. At first the McLean County System, largely as originally devised, was tested. Later some modifications were tried. Several years later the scheme of kidney-worm control tested on the King farm was published by Dr. Benjamin Schwartz.

Other cooperators, unpaid, were added by Dr. Nighbert. Some were in Colquitt County, (C. A. Hiers and David Newton) and one, W. W. Willis, was in Tift County, near Tifton. Roughly, these cooperators were of two types; one type exercised some moderate degree of sanitation, based largely on the McLean County System, the other type (the control) managed their herds in the usual fashion, i. e. with no sanitation. There were, then, farm tests of three types of management employing different degrees of sanitation.

Dr. Nighbert was a dedicated parasitologist and did not hesitate to spread the gospel of sanitation when given the opportunity. According to a good authority even a Wednesday night prayer meeting was included.

Until September 1929, when Dr. L. A. Spindler was transferred to Moultrie from Beltsville, Dr. Nighbert and Mr. Connelly were the only employees at the laboratory. Dr. Spindler assisted them with their work and also made independent observations on kidneyworms, nodular worms, and other parasites. He worked under the direction of Dr. Schwartz, who was stationed in Washington, D. C.

From a collection of nodular worms obtained from swine at Moultrie made during one of his regular visits, Dr. Schwartz described two new species of Oesophagostomum; O. brevicaudum and O. georgianum.

Dr. Nighbert was transferred from Moultrie to Beltsville in October 1930 and was replaced by Dr. H. B. Raffensperger, from Miles City, Montana. In August, 1931, Dr. Spindler returned to Beltsville, Md. Mr. Connelly was transferred to Beltsville in June 1933.

In September, 1936 Dr. Dale A. Porter was transferred from Washington, D. C. to Moultrie. Dr. Porter made observations on pigs experimentally infected with the red stomach worm (Hyostrongylus rubidus), on intermediate hosts of swine nematodes, on the incidence of Gongylonema in swine and ruminants, and on the effectiveness of swine sanitation on stomach worms in swine. He was transferred to the Regional Laboratory at Auburn, Alabama in February, 1938, but returned for a short period in the fall of 1939 to investigate phenothiazine as an anthelmintic in cattle.

During the early part of Dr. Raffensperger's tenure of office, Swift and Company built several concrete floored pig pens immediately adjacent to the office building and laboratory. Parasite studies were conducted in these pens in turn by Drs. Raffensperger, Spindler and later by Dr. Swanson for anthelmintic investigations. Swift and Company furnished the pigs and the feed for these studies.

On Dr. Raffensperger's death in May 1938, Dr. Leonard E. Swanson was appointed Veterinarian in Charge of the Moultrie Laboratory, but did not assume his duties until August 1, 1938. Dr. Swanson had been working on the Liver Fluke project in Montana. Mr. Connelly was transferred back to Moultrie in January 1939.

During 1939-1940 observations were made on the efficacy of phenothiazine as an anthelmintic in cattle and swine.

In June 1939, Dr. Kenneth C. Kates was transferred from Beltsville to Moultrie to take charge of the work during Dr. Swanson's absence from July to October of that year. On Dr. Swanson's return, Dr. Kates was transferred back to Beltsville. Dr. Swanson was in charge of the laboratory until July 1941, when he resigned to become Parasitologist at the University of Florida at Gainesville.

Early in the 1930's it became apparent that cooperative work with farmers had its limitations. Accordingly, Dr. Schwartz, Dr. S. H. Starr, Director of the Coastal Plain Experiment Station at Tifton, Georgia, and Mr. Southwell, Animal Husbandman at the Experiment Station, held a number of conferences during which the possibility of transferring the swine parasite work to Tifton was discussed. The main reasons for moving to Tifton were (1) the lack of facilities to carry on experimental work in Moultrie, (2) the lack of experimental animals that could be necropsied when required by the experiment, and (3) the necessity for conducting research on the effects of parasites on the nutrition and growth of swine under controlled conditions.

In May, 1941 Dr. Schwartz wrote to Dr. John S. Andrews, who was then in Puerto Rico, as follows,-----"We are entering into a cooperative agreement with the Tifton Station for the work that I mentioned in the previous communication; (i.e.) The problem-----of making a careful study on the effects of swine parasites on the feed utilization by the hosts, growth, etc., etc."----- The station is preparing for us a laboratory, an office, a postmortem room, and storage space. Pigs and sows will also be made available to us under a special arrangement."

Shortly after July 1, 1941, Mr. Connelly moved the laboratory from Moultrie to the Georgia Coastal Plain Experiment Station, Tifton, Georgia, and set up a laboratory in the basement of the original research building of the station. He then commuted between his home in Moultrie and the experiment station for about a month, until he could obtain possession of the house he had rented.

On August 1, 1941, Dr. Andrews assumed the duties of Parasitologist in Charge of the Parasite Laboratory. Dr. Robert A. Norris, who is now a Research Ornithologist in San Francisco, California, worked at the laboratory during the summer of 1942 when he was a student at Abraham Baldwin Agricultural College.

Mr. Connelly retired in November 1944 because of ill health and Mr. David J. Jones was hired to replace him. In January 1951 the laboratory was moved to the recently completed Animal Disease Laboratory on Brighton Road. After the move some research effort was directed to aiding State personnel in diagnosing parasitism in animals submitted for necropsy.

During the early years at Tifton comparisons were made of the acquisition of parasites by pigs raised under various degrees of sanitation and of pigs hogging-off various seasonal crops. A long-term study was initiated in 1950 to compare permanent and temporary pastures for farrowing pigs and raising them to market weight.

Dr. Andrews was transferred to Beltsville, Maryland in September 1953 and Mr. T. Bonner Stewart was transferred from the Regional Animal Disease Laboratory at Auburn, Alabama to replace him as Parasitologist in Charge at Tifton.

In February 1954, Mr. Thomas K. Sawyer transferred from the National Institute of Health and was sent to Tifton as an assistant to Mr. Stewart. He remained at the laboratory through January 1955, at which time he returned to the Public Health Service. Mr. Arnold Steele was hired in July 1955 to replace Mr. Sawyer.

A pilot experiment was begun in 1955 to test the possibility of eradicating kidneyworm from a herd by using only gilts as breeders. Observations were made in a small lot behind the Animal Disease Laboratory.

On August 28, 1955, Dr. Francis G. Tromba of Beltsville, Maryland was transferred to Tifton to replace Mr. Stewart who had made arrangements to attend the University of Maryland during the fall and winter of 1955-56. On the same date Mr. Willard W. Becklund arrived from Las Cruces, New Mexico, to work on the economics of internal parasites of sheep and cattle in the Southeast.

With the reorganization within the Department of Agriculture in 1953, changes in affiliation occurred over the next few years which gave the research group independence as a laboratory, eventually known as the Animal Parasite Research Laboratory, answering to the Director of the Animal Disease and Animal Parasite Research Division (later Veterinary Sciences Research Division).

Mr. Stewart resumed his duties at the laboratory in August 1956 and Dr. Tromba returned to Beltsville. Shortly thereafter Mr. Steele transferred to Crops Research Division as a Nematologist.

A large scale experiment was begun in 1957 to further test the gilt system in the eradication of kidneyworm. A combination farrowing barn and feeding parlor was built on the northern edge of the swine farm adjacent to several acres of pasture.

Mr. Becklund was transferred to Beltsville, Maryland on October 5, 1958.

Early in 1960 arrangements were made with Mr. Guy Connell, Nashville, Georgia to use his farm in the Cottle Community, Berrien County, for a test of the gilt system in the eradication of kidneyworm.

Mr. Stewart again took leave of absence in September 1960 to attend the University of Illinois, Graduate School, and Mr. W. N. Smith, of the Regional Laboratory, Auburn, Alabama, replaced him as Parasitologist in Charge.

In the fall of 1961 observations were begun on pigs experimentally infected with the threadworm, Strongyloides ransomi. Studies with this parasite were undertaken since strongyloidosis seemed to be the most important disease of baby pigs in the area. The prevalence of strongyloidosis was established in cooperation with the diagnostic service of the Animal Disease Department and the investigation of numerous farms over a period of several years.

In September 1962 Mr. Smith left Tifton to attend the Graduate School of the University of Maryland, leaving the work temporarily in charge of Mr. Jones.

Dr. Stewart returned to Tifton in January 1963, having successfully completed the requirements for the degree of Doctor of Philosophy in Veterinary Medical Science.

The year 1963 marked another milestone in the history of swine parasite investigations at Tifton. After months of preparation, the personnel of the laboratory moved to the rejuvenated quarters first occupied by their predecessors in the basement of the original research building. During the year the third and final stage of the kidneyworm eradication project was completed.

Beginning in 1964 a greater emphasis was placed on the parasite-host relationship between Strongyloides ransomi and the pig. The effects of different levels of infection, proteins, vitamins, breeds of swine, and vermifuges were studied.

Dr. Porter's work in 1936-38 with dung beetles as intermediate hosts of swine nematodes was resumed with a survey of dung beetles made during the years 1957 to 1959. The work was expanded over the next few years to include attraction studies and ecological relationships.

On September 1, 1966 Mr. G. Truman Fincher, Graduate Student at the University of Georgia undertook to continue the beetle work as a thesis project for the Ph.D. degree. He rotated his studies at Athens with research at Tifton over the next two years until he completed the requirements for the Ph.D. degree in Entomology, which he received in June 1968. Dr. Fincher continued working with the project during the summer and was hired on August 12, 1968 to continue the work with beetles.

Mr. O. G. Marti reported for duty as a Research Assistant on July 3, 1967 following his graduation with a B.S. degree from Southern Illinois University, Carbondale, Illinois. He departed September 17, 1968 to take up a traineeship in parasitology with Dr. Norman D. Levine at the University of Illinois, Urbana. He returned to Tifton on June 22, 1970.

With completion of basic taxonomic and biological studies of the native dung beetles in the area, investigations began on the ecology of dung beetles with emphasis on the effects on the parasitisms of cattle on pasture.

In 1970 and 1971 in-depth studies began on the transmission of parasites through the sow's milk, the effects of intestinal parasites on digestion and the effect of various diets on the acquisition of parasites. The testing of new anthelmintics, especially against S. ransomi, which had received little attention in prior years, became an important part of the overall research.

During the years 1972 and 1973, facilities were made available for Ms. Priscilla Peterson, a Ph.D. candidate at the University of Wisconsin under Dr. A. C. Todd, who made short visits to collect beetles infected with the stomach worms of swine. She spent the summer of 1974 (May 20 through August 30) in Tifton, carrying out infection experiments with the thick stomach worms of swine.

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PUBLICATIONS FROM THE SWINE PARASITE LABORATORY,
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USDA, ARS, ANIMAL DISEASE AND PARASITE
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