

Entomology at Purdue

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Purdue University is the Land Grant College of Indiana and was established under the provisions of the Morrill Act of July 2, 1862. The Indiana legislature accepted the grant in 1865. The site and name (Purdue University) were selected for the proposed college in 1869. The first president, Doctor Richard Owen, was elected in 1872 and the first students were admitted in 1874 (7).¹

Entomology was provided for in the first plans made for the University. It is of interest to note (1) that of the 30 books which comprised the University library in 1874, four dealt with insects. These were: Harris' "Insects Injurious to Vegetation," Packard's "Guide to the Study of Insects," Langstroth's "The Honey Bee," and Quinby's "Mysteries of Bee Keeping."

Entomologists at Purdue have participated in the four principal fields of entomology: teaching, research, regulatory, and extension.

Teaching

In the first course of study published by Purdue (1) five courses in entomology were included. A two-hour course entitled "Entomology" was included in the second year and a course, "Management of Bees," in the third year of the Full Course in Agriculture and Horticulture; a two-hour course "Zoology—Insects Useful and Injurious" was included in the second year of the Special Course in Agriculture; and a two-hour course "Entomology" in the second year and a five-hour course "Relation of Entomology and Botany" in the fourth year of the Course in Natural History. This first course of study was evidently planned by Doctor Richard Owen, as he was the only member of the faculty up to 1874.

Despite the fact that entomology courses were listed in the Course of Study for the years 1874-1879, there were no formal classes in entomology taught until the spring of 1880, for it was not until the fall of 1879 (4) that the first students enrolled in the School of Agriculture and Horticulture. All students in the school at that time were required to take a six-weeks course in entomology in the third term of the first year. As Professor Charles L. Ingersoll was the sole instructor in the School of Agriculture and Horticulture at that time, he would be the first to teach a class in entomology at Purdue. Professor W. C. Latta, who succeeded Professor Ingersoll, probably taught classes in entomology during the school years 1882-83 and 1883-84.

The real teaching in entomology at Purdue began in 1884 when James Troop was added to the staff of the School of Agriculture and Horticulture with the title of Professor of Horticulture and Entomology. Professor Troop was born in New York in 1853 and received a B.S. degree from Michigan State College in 1878 and a M.S. degree from that institution in 1882. He also did graduate work in entomology at Cornell and Harvard.

1. Numbers in Parentheses refer to Literature Cited.

When the Department of Horticulture was organized, Professor Troop became its first head and in 1912 when the Department of Entomology was organized he became its first head. Although Professor J. J. Davis succeeded him as head of the Department in 1920, Professor Troop continued his teaching until 1929 and was on the staff as professor emeritus at the time of his death in 1941. At the time of his appointment there was but one course offered in entomology. This number had been increased to five by the time he retired as head of the department in 1920.

Mr. Jesse G. Boyle, an instructor in Horticulture, taught the beginning course in entomology from 1910 to 1912. P. W. Mason was appointed Instructor in Entomology and Assistant in Entomology in the Agricultural Experiment Station in 1912. He held these positions until 1918. W. A. Price joined the teaching staff of the Department in 1914 and remained at Purdue until 1929 when he resigned to accept the position as head of the Entomology Department at the University of Kentucky.

In 1920 John J. Davis succeeded Professor Troop as Head of the Department, which position he now holds. Professor Davis was graduated from the University of Illinois in 1907. Before coming to Purdue he had been employed by the Illinois Natural History Survey and by the Bureau of Entomology of the U. S. Department of Agriculture. He had charge of the U. S. Cereal and Forage Insect Laboratory at West Lafayette from 1913 until 1919. In 1919-1920 he had charge of the Japanese Beetle investigations for the Bureau of Entomology at Riverton, New Jersey. His principal research activities up to the time he came to Purdue had been with greenhouse insects, aphids, white grubs, the Japanese beetle, the Hessian fly, and cutworms. Under Professor Davis' leadership, instruction in entomology has expanded until Purdue is now recognized as being one of the leading centers of entomological education.

Until 1928 the Department of Entomology (5) was solely a service department, providing instruction in entomology for students specializing in the various fields of Agriculture. In 1928 a curriculum was provided for students who wished to major in entomology. A second curriculum was set up in 1946 at the demand of the Pest Control Operators of the United States and Canada to provide a four-year course of instruction for students who wish to become Commercial Pest Control Operators. Therefore, at present the Department administers two undergraduate curricula, one called Entomology and the other Structural Pest Control, which lead to a B.S. in Agriculture degree. Besides this the Department offers graduate study which leads to the degrees of Master of Science and Doctor of Philosophy. At present 31 courses are offered by the Department on the University campus and one each at the Purdue Extension Centers at Fort Wayne and Indianapolis.

Up to the present, 86 students majoring in entomology have earned a Bachelor of Science in Agriculture degree, 27 a Master of Science degree, and four the Doctor of Philosophy degree. Of the 86 students who received their undergraduate degrees in entomology at Purdue 38 have gone on to do graduate work. Twenty-seven of these have earned Master of Science degrees, one a Doctor of Medicine degree, and four the Doctor of Philosophy degree.

The present members of the teaching staff are: L. Chandler, instructor; M. L. Cleveland, graduate assistant; J. J. Davis, professor and head; H. O. Deay, professor; B. E. Montgomery, associate professor, and J. V. Osmun, assistant professor.

Research

Professor Troop started research work in entomology soon after he came to Purdue in 1884. After the passage of the Hatch Act in 1887 the Agricultural Experiment Station at Purdue was reorganized in 1888 (7) and Professor Troop was named Horticulturist in the Experiment Station although he did research in entomology as well as horticulture. His principal entomological research was with fruit insects, particularly the codling moth. He described a new species of aphid (*Myzus houghtonensis*), a pest of gooseberry, in 1906. When the Department of Entomology was organized in 1912, he became its first chief. P. W. Mason was his assistant from 1912 to 1918.

In the same year that Professor Troop came to Purdue (5), F. M. Webster was sent to Purdue as Special Agent of the U. S. Department of Agriculture and Consulting Entomologist of the Purdue Agricultural Experiment Station. Although he was never on the payroll of the University, he was listed as a member of the staff, sometimes as Professor of Economic Entomology and sometimes as Entomologist. Webster was stationed at Lafayette from 1884 to 1891. He did outstanding work while in Indiana on insect pests of the cereal crops. He is the author of the first bulletin of the Purdue Agriculture Station—Bulletin No. 1, The Hessian Fly, Dec. 30, 1884 (1885).

Professor J. J. Davis succeeded Professor Troop as Chief in Entomology in 1920. Since that time there has been a gradual expansion of the research work in entomology until at present there are five full-time and three part-time members of the research staff: These are: J. J. Davis, professor and chief; H. O. Deay, professor; R. T. Everly, assistant professor; G. E. Gould, associate professor; G. E. Marshall, assistant professor; B. E. Montgomery, associate professor; D. L. Schuder, instructor, and M. C. Wilson, instructor.

Research is being done at present on the control of insect pests of corn, greenhouse plants, fruits, legumes, nursery plants, tobacco, trees and shrubs, and vegetables; on flies, termites and soil inhabiting insects; on the reaction of insects to radiant energy and on its possible use as an insect control; on causes of insect abundance; on biological control of insects; on insect pollinators; especially those pollinating legumes, and on plant resistance to insects.

The principal taxonomic studies of the staff have been on the Coleoptera, Hemiptera, Homoptera, Hymenoptera, Lepidoptera, Odonata, Orthoptera and Neuroptera.

Regulatory Work

At present Purdue has no connection with inspection and regulatory work in entomology. However, when the original Indiana San Jose scale and Nursery Inspection Law was passed in 1899, Professor Troop was placed in charge of its enforcement with the title of State Entomologist.

He continued to have charge of this work until 1907 when the State Entomologist's office was moved to Indianapolis.

Extension

The extension work in entomology is under the direction of Professor Davis. Although all of the entomologists who have been connected with Purdue have taken part in extension activities, funds for the employment of an extension entomologist, per se, did not become available until 1936. In March of that year G. E. Lehker joined the staff as its first full-time extension entomologist. The employment of a full-time extension entomologist made it possible to provide Indiana farmers with more complete information about insect pests. In addition to his work with adults, Professor Lehker has been instrumental in developing one of the nation's outstanding 4-H Entomology Club programs. The success of this program in Indiana has been largely responsible for the formation of the National 4-H Entomology Awards Program. This national program provides an incentive for 4-H Club members to participate in the 4-H Club entomology projects in the various states.

In 1922 a Field Station of the Predator and Rodent Control Branch of the Fish and Wildlife Service of the U. S. Department of Interior was established at Purdue. The personnel of this station have been housed with and have cooperated closely with the entomology extension service. Carlyle Carr was first in charge of this station. G. C. Oderkirk has had charge of this station since 1925. He is assisted by W. D. Fitzwater.

Insect Collections

A start toward the development of a permanent insect collection was made early in the history of the University. The Register for 1876-77 (2) states that the zoological museum ". . . embraces specimens of entomology, a few cases being mounted and named, but the greater portion being unmounted." The Fifth Annual Register (3) states that there were 14 cases of specimens of entomology, collected chiefly in the vicinity of Lafayette, and the Scheuch Collection (27 cases) containing 7,000 specimens and over 2,000 species, mostly beetles, from Europe. Unfortunately these early collections have been destroyed and no trace of them remains.

The present Entomological Collection had its beginning with the purchase in 1896 of the T. B. Ashton collection of beetles. This, a named collection largely from New York and Kansas, was the only permanent collection in existence in the department when Professor Davis became Head in 1920. He immediately inaugurated plans for the development of a permanent, well-cared-for collection. At present the Entomology collection contains over 500,000 specimens representing about 15,000 species, 500 of which are represented by type specimens. It includes among others the Davis collection of Aphididae and Scarabaeidae, the Monell collection of Aphididae, the Adams collection of Diptera, a collection of Odonata donated by E. B. Williamson, the Troxler collection of Lepidoptera, the Blatchley collection of Coleoptera, Orthoptera, Hemiptera, and Lepidoptera which were purchased from Dr. Blatchley in 1935, and a collection of Indiana Coccidae donated by Harry Dietz. A majority of the species in

the collection are from the United States, but there are several thousand exotic species, most of which are from Europe, South America and Japan.

Staff members in addition to Professor Davis who have made substantial contributions to the Collection are Leland Chandler (Bombidae and other Hymenoptera), H. O. Deay and G. E. Gould (Hemiptera and Homoptera), G. A. Ficht (Noctuidae), B. E. Montgomery (Coleoptera and Hymenoptera), and D. L. Schuder (Coccidae). Many of the students who have majored in the Department have contributed extensively to the collection. Among these are J. M. Amos (Coccidae), C. R. Ash (Tingidae), C. C. Blickenstaff (Thysanoptera), I. C. Brooks (Culicidae), H. E. Brown (Cicadellidae), J. W. Hart (Culicidae), R. R. Heaton (Fulgoridae), J. M. Kingsolver (Trichoptera), V. R. Knapp (Aphididae), D. W. LaHue (Cicadellidae), R. L. Morris (Formicidae), F. E. Skinner (Siphonaptera), A. W. Trippel (Chrysomelidae), and R. F. Wilkey (Collembola).

Conferences Inaugurated at Purdue

Shortly after Professor Davis came to Purdue a meeting of the entomologists of the North Central States was called at his suggestion to discuss their mutual problems (6). This, the first "Annual Meeting of the North Central States Entomologists," was held at Purdue, March 15, 1921. Thirteen entomologists, representing four states (Illinois, Indiana, Missouri and Ohio) and the Bureau of Entomology, attended. The name of this organization was changed to the North Central States Branch of the American Association of Economic Entomologists in 1945 and to the North Central States Branch of the Entomological Society of America in 1953.

In 1937 the Department conducted a five-day conference or short course for the commercial pest control operators. This was the first conference of its kind ever held. It was attended by 68 pest control operators from 14 states. It has been held annually ever since, the 18th conference, which was attended by over 300 PCO's, being held in 1954. In all over 1,200 different persons from 45 states, the District of Columbia, Hawaii, and Canada have attended these conferences. As a result of the success of the Purdue Conference similar conferences have been held at Massachusetts University, Louisiana State University and in California and Canada.

Other conferences initiated and sponsored by the Department are "Use of Aerial Equipment in Agriculture" and "Insect and Rodent Control Conference for Sanitarians." The former of these was first offered March 10-11, 1949, under the title "Short Course for Airplane Sprayers and Dusters" and was sponsored by the School of Agriculture and the Technical Extension Division of Purdue in cooperation with the Indiana Aeronautics Commission and Conservation Department. Since 1952 this conference has been sponsored jointly by Ohio and Indiana and is held in alternate years at Purdue.

The Annual Insect and Rodent Control Conference for Sanitarians was first held in 1946 and is sponsored by the Department of Entomology, the Predator and Rodent Control Branch of the Fish and Wildlife Service of the U. S. Department of Interior, and the Indiana State Board of Health.

Student Organizations

Students at Purdue who were interested in the study of insects formed the Purdue Entomological Society in 1928. The purpose of the society was "to promote and stimulate interest in the science of entomology." In 1931 the name of this society was changed to the Thomas Say Entomological Society of Purdue University. This Society meets each month during the school year and sponsors an annual banquet in the spring which is attended by most of the entomologists in the state.

In 1950 students majoring in the Structural Pest Control Option formed the Alpha Chapter of a national professional pest control fraternity, Pi Chi Omega, on the Purdue campus. The principal objective of this fraternity is "To further the science of pest control."

Entomology Staff Members

The following is a list of those who have been members of the entomology faculty. The letters following their names denote the capacity in which they were employed: A—Administrative, E—Extension, I—Instruction, and R—Research.

P. W. Berg, I, 1946-53; Leland Chandler, I, 1950—; C. R. Cleveland, I, 1921-27; J. J. Davis, A E I R, 1920—; H. O. Deay, I R, 1929—; C. O. Dirks, I, 1925-27; R. T. Everly, R, 1948—; G. A. Ficht, R, 1927-41; G. E. Gould, R, 1931—; G. E. Lehker, E, 1936—; G. E. Marshall, R, 1930—; P. W. Mason, I R, 1912-18; H. E. Milliron, R, 1942; B. E. Montgomery, I R, 1929—; G. B. Newman, R, 1919-20; J. V. Osmun, I, 1948—; W. A. Price, I, 1914-29; H. R. Riley, R, 1927-31; D. L. Schuder, R, 1949—; L. F. Steiner, R, 1927-30; James Troop, A I R, 1884-1941; M. C. Wilson, R, 1947—.

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7. HEPBURN, WILLIAM M. 1924. A short history of Purdue University. *In* Purdue Univ. Semi-Centennial Alumni Record. *Bull. Purdue Univ.* **24** (7): 13-21.