# Entomology at Indiana Universities, Colleges, and Other Institutitos Since 1854[1]

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Indiana has produced a surprisingly large number of outstanding entomologists during the period since 1854. Whether we attribute this to pure chance, weather, or merely a statistical excrudescence produced by Hoosier pride, the apparent fact remains. The contributions of many of these men have already been acknowledged, but there are others worthy of note. Some were professionals; some we would call "rank amateurs." Some earned their living through their entomological work; others collected and studied insects purely for the fun of it. Regardless of their standing in relation to the professional field, however, no history of entomology in Indiana would be complete without mention of several whose names are known throughout the world.

## The Early Collectors and Naturalists

During the period from 1854 to the early 1900's, most of the students of insects outside the applied phases were collectors who did little besides accumulate specimens. These collections were sometimes studied by others or, more frequently, were merely destroyed upon the death of the individual. The importance of these men is mainly through the influence which they exerted on those who came later.

In this group we must mention W. P. Shannon (1847-1897), who collected insects while living at Evansville and Greensburg, and George C. Hubbard, who furnished Blatchley with butterfly records from around Madison. Both presented reports on insects before the Indiana Academy in the 1880's; but the papers were never published, and the collections on which they were based are now apparently lost.

Among the most important collections made during this period was that of George Mitten (1826-1906), who collected Lepidoptera and other insects while he lived at Goodland. Part of his fine collection is now at Purdue University. Samuel G. Evans (1839-1929) lived at Evansville from shortly after the Civil War until his death. He was particularly interested in the Lepidoptera, and is said to have prepared one of the finest collections of this order ever assembled in the state. Unfortunately, he never published lists or records, and most of his collection was lost through carelessness and neglect. R. J. Weith (1847-1902) lived in Elkhart for many years, and worked on Hymenoptera and Odonata. He is said to have made several important discoveries and many new records; but again, unfortunately, he published no papers, and his collection was scattered after his death.

Other collectors included Dr. T. G. M. Levette of Indianapolis, who made an extensive collection of Coleoptera, part of which was sold to T. L. Casey and is now in the U. S. National Museum. Dr. F. Stein, who also practiced medicine in Indianapolis, made another excellent collection of beetles, some remnants of which were turned over to W. S. Blatchley.

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1. Contribution No. 575 from the Zoological Laboratories of Indiana University.

The entomological work of Blatchley (of whom more later) also began in the 1880's and continued until his death in 1940. One of his important contributions was the accumulation and compilation of records of insects in many groups. His extensive collections, now at Purdue University, stand as a monument to his many years of industrious efforts.

J. J. Davis has summarized much of our information concerning these early workers, and reference should be made to his paper (*Proc. Indiana Acad.*, 41: 43-70, 1932) for further pertinent details.

Many entomologists collected or studied insects in Indiana during the late 1800's and early part of the present century. Davis *(op. cit.)* mentions among others the following: Melville T. Cook (insect galls); O. S. Roberts (Lepidoptera); C. F. Adams (Diptera); J. Speed Rogers (Diptera); Emil Beer (Lepidoptera); William J. Gerhard (several groups of insects); A. B. Wolcott (Coleoptera); Emil Liljeblad (Coleoptera), and Alex K. Wyatt (Lepidoptera). Indiana insects collected by several of these workers are in museums throughout the country, especially the Chicago Natural History Museum and the University of Michigan Museum of Zoology.

Countless entomologists must have found Indiana a pleasant and profitable collecting place, but their visits are mostly forgotten except for the records and descriptions in scattered monographs and papers. A notable exception is the visit of the French entomologist, R. G. Jeannel, who came to study cave insects in the 1920's. His visit is remembered largely because he wore a beret, and insisted on crawling into the most unlikely holes in the ground.

Besides collecting in Indiana, several Hoosier entomologists behaved as if they had the six legs and the wings of their pets. W. S. Blatchley accompanied an expedition to Orizaba in Mexico in 1891 and published several papers on his collections. He later traveled extensively in South America. E. B. Williamson traveled widely in Central and South America in pursuit of dragonflies, many of which he later described as new. Fernandus Payne collected many specimens of Hemiptera and Homoptera for his cytological work in the South and West. A. C. Kinsey and his students explored the United States, Mexico, and as far south as Guatemala for gall wasps and other insects. These collectors and many others have added greatly to the collections of American museums and to the general advancement of entomology.

## Entomology at Indiana University

Entomology at Indiana University is not considered a separate discipline, and no distinction is made between it and other fields of general zoology. There has been, however, from the time of David Starr Jordan, a considerable amount of emphasis upon the study of insects; and a considerable amount of research in taxonomy, cytology, physiology, genetics, and ecology of insects has been carried on.

The first course in Entomology as such was taught in 1886 by the distinguished geologist James C. Branner (1850-1922). We know little of the success of this course, except that three of Branner's students became outstanding entomologists: W. S. Blatchley, Jerome McNeill (1857-1928),

and Charles Bollman (1868?-1889). McNeill taught at Florida State College for many years, and was a recognized authority on Orthoptera. Bollman became the American authority on the millipeds, but died at the early age of 21 of malaria at Waycross, Georgia.

According to the catalogue for the year 1886-1887, two courses in entomology were offered: "VII. *Entomology.* Lectures on general entomology; discussion of the orders, families or species of local and economic importance; field and laboratory work. *Third term, daily.*," and "VIII. *Advanced Entomology.* Field and laboratory work; methods of investigation; anatomy, habits and life history of insects; methods of capturing, handling, mounting, labeling, arranging and preserving insects. *Year's course, daily.*" In the same catalogue, the *Entomological Laboratory* is described as being on the second floor of Owen Hall. Microscopes and appliances were available as well as a collection of specimens and reference works.

In another section of the 1886-1887 catalogue the University Museums are described. Besides the geological and other collections, a separate section was apparently devoted to entomology, described as follows:

**"Entomology**

"Although the work in this department began only recently, the collections are already extensive and are growing at a remarkable rate. It numbers, at present, about six thousand specimens, representing about a thousand species. The collection of myriapods is one of the largest in the country, representing not only the myriapods of this state, but also of the whole United States.

"The collection of Prof. Branner, made in Brazil, and that of Mr. C. H. Bollman, made in the vicinity of Bloomington, have been deposited with the material belonging to the Museum.

"Through Prof. C. V. Riley, United States Etomologist [sic!], this department has also received a collection of insects selected for the purpose of illustrating lectures upon the various orders and families.

"Prof. J. H. Comstock, of Cornell University, has also contributed a valuable series for similar purposes. A considerable series of beetles and other insects has also been presented by Prof. O. S. Westcott, of Chicago.

"All the insects, whether mounted or in alcohol, are so arranged that they are readily available for either laboratory or classroom work or for exhibition."

In the intervening years, this collection has both diminished and grown. Many specimens collected by W. S. Blatchley and others are still included, but time and use have destroyed many of the older specimens. The Bollman collection of myriapods, including some types of species described by him, was unfortunately lost due to evaporation of alcohol and was probably abandoned at the time the zoology department moved into the present building. The collection remaining was largely rehoused and enlarged by A. C. Kinsey after 1920, and is at present being renovated and partly transferred into museum drawers by the writer.

After the brave beginning in 1886, entomology as such languished for nearly 35 years, until revived in 1921 by A. C. Kinsey. During the inter-

vening years, the study of insects was included as an important part of the general course, but was not considered a separate subject. From 1910 until 1916, the third semester of the beginning course was called "Insects and Birds," and was taught first by Fernandus Payne and later by Will Scott.

There was considerably more entomological activity during this period at the Biological Station than on the Bloomington campus. W. S. Blatchley lectured on insects at the Station on Lake Wawasee in 1895. The Station was later moved to Lake Winona, and among the outstanding lecturers was James G. Needham. During the period from 1900 until about 1910, Thomas J. Headlee, Leonard Haseman, Clarence H. Kennedy and Norman E. McIndoo were all at various times assistants or instructors at the Station.

Although little formal training in entomology was available between 1886 and 1921, the inspiration of Carl H. Eigenmann, Will Scott, and others in zoology seems to have been enough to produce, to encourage, or at least to start on their way a number of outstanding entomologists: Leonard Haseman (State Entomologist of Missouri); Thomas J. Headlee (State Entomologist of New Jersey); Clarence H. Kennedy (Professor of Entomology at Ohio State University); Waldo L. McAtee (USDA and U. S. Fish and Wildlife Service); Norman E. McIndoo (USDA); and George D. Shafer (Professor of Entomology at Stanford University). Of these McAtee apparently received no further formal training in entomology, but made notable contributions through his studies on insects as the food of birds and other animals. The others took their doctorates at Cornell University under J. H. Comstock, except McIndoo who completed his work at the University of Pennsylvania.

From the spring of 1921 until 1944, A. C. Kinsey offered several courses in general, medical, and economic entomology each year. The course in Taxonomy (1922-1937) was also largely concerned with insects, and finally evolved into the course in Evolution (1936-1937). Lamont C. Cole taught entomology and ecology from 1946 until 1948. The present writer took over the work in entomology in 1949, and the present course in Ecology also deals extensively with insects.

Students who have received their doctorates at Indiana in the field of entomology are: Robert E. Bugbee (1936); Osmond P. Breland (1936); Merle E. Jacobs (1953); Herman T. Spieth (1931), and Ralph Voris (1928). Voris produced a considerable amount of excellent research on the comparative anatomy, biology, and taxonomy of the Staphylinid beetles before his death in 1939.

A considerable amount of research is carried on at Indiana on several aspects of biology in which insects serve as experimental material.

Dean Fernandus Payne (1881—) has made outstanding contributions to cytology through his studies on Hemiptera and Orthoptera. He was one of the first workers to demonstrate cytological differences in insects where taxonomists had not recognized morphological differences. In 1907, while a graduate student at Columbia University, he established one of the first cultures of *Drosophila melanogaster*, and performed a series of genetic experiments on this fly both at Columbia and later in Indiana.

H. J. Muller joined the staff in 1945; and he, his associates, and students have continued research on the genetics of *Drosophila*.

W. E. Ricker carried on studies on the Plecoptera in connection with his limnological research while he was director of the Indiana Lake and Stream Survey from 1939 to 1950. Shelby Gerking has also studied the Gyrinidae and other aquatic insects in connection with limnological activities.

### Instruction and Research at Other Institutions

A number of courses in entomology has been offered at state institutions other than Purdue and Indiana.

Ball State Teachers College—Robert H. Cooper has taught a course in general entomology since 1936, and has also conducted research and published several papers on insect anatomy and biology, particularly of the Orthoptera. Donald Miller also taught entomology there. The College maintains a collection of insects representing the principal orders and families.

Butler University—A general entomology course was formerly offered by H. G. Nester, and the University maintains a considerable collection of various orders and families of insects. The collection includes South American butterflies, representative Cynipidae from the Kinsey collection, and Odonata from the Williamson collection. Dr. Nester has been especially interested in the pseudoscorpions. Nathan E. Pearson has also made notable contributions to cytology through his studies of insects.

DePauw University—Walter N. Hess taught a course in entomology every other year until about 1928. He also conducted research on the chordotonal organs of beetles, and the morphology and biology of fireflies.

Earlham College—William Burbank has offered a general course in entomology every other year. The College maintains a collection largely of Wayne County insects.

Franklin College—Insect study has been provided from time to time, but no formal course in entomology seems to have been offered.

Goshen College—No courses in entomology have apparently been offered in recent years. Merle E. Jacobs was a member of the staff in 1953-54 and continued his studies of dragonfly behavior.

Indiana State Teachers College—C. W. Allyn has offered a general course in entomology which often enrolls seventy to eighty students. No research is apparently in progress at present.

Indiana Central College—William P. Morgan has done a considerable amount of work on insect cytology and has also worked on the Dermaptera of Indiana. The College maintains a small insect collection.

Manchester College—No special courses in entomology seem to have been offered, but Professor Emeritus Edward Kinter has maintained an interest in insects and spiders.

Notre Dame University—No special courses in entomology seem to have been offered. Some research in general zoology has used insects as experimental material.

Valparaiso University—Frank R. Elliott previously offered a course in general entomology during the summer session. He has also worked

for many years on the spiders of Indiana. Carl H. Krekeler at present teaches the entomology during the summers, and is continuing his research on cave beetles.

Vincennes University—A general course in entomology has been offered since 1951 by Charles L. Haggard.

Wabash College—Donaldson Bodine (1866-1914) taught at Wabash College for many years and his interest in entomology probably caused him to place considerable emphasis on insects in his course.

### Other Distinguished Hoosier Entomologists

Indiana is the birthplace of a considerable number of nationally known entomologists, who, however, received most of their training and achieved prominence elsewhere. Outstanding in this group are: Marshall A. Barber (pioneer in the use of Paris green as a larvicide against anopheline mosquitoes); Andrew N. Caudell (authority on Orthoptera); Russell Myles Decoursey (Professor at the University of Connecticut); Edward O. Essig (distinguished Professor of Entomology at the University of California); Maurice T. James (authority on Diptera); Oscar William Oestlund (1857-1948, Professor at the University of Minnesota); J. Speed Rogers (Director of the Museum of Zoology of the University of Michigan, and authority on Diptera); Robert L. Webster (Professor of Entomology and head of the Department of Zoology at the State College of Washington).

In this group we should also include Dr. Herbert C. Clark, born in Economy, Indiana, in 1877. He served many years as director of the Gorgas Memorial Laboratory in Panama, and is a world authority on malariology.

Many other entomologists are at present working in the state, have been employed in the past, or obtained all or part of their training here. It is impossible to mention them all, and it is hoped that none will take offense if their names are omitted. Those which come immediately to mind are: Griffin J. Baker (Standard Oil Company of Indiana); John P. Barrett (Armour and Company, Chicago—has collected Diptera in Indiana for several years); Edward Junior Campau (Standard Oil Company of Indiana); David Tracy Jones (Miami (O.) University—insect physiology); John Gilbert Shaw (USDA); Lee Campbell Truman (Arab Pest Control Company and Federal Chemical Company).

### The Outstanding Hoosier Entomologists of the 20th Century

Indiana has long been recognized as a center of entomological activity and research. This wide recognition has come about, in my opinion, largely through the contributions of four outstanding men. I think that we can call them all "Hoosiers" although only one of the four was actually born in Indiana. Few states can boast a more distinguished group of internationally known entomologists.

Few who have had even the most casual contact with insects will fail to recognize the name of Willis Stanley Blatchley (1859-1940). His boundless energy, keenly analytical mind, and wide interests have left an indelible mark not only upon Indiana, but upon the whole science. If he had done nothing else, we would still have to consider him the foremost Hoosier

entomologist for his great work "On the Coleoptera Known to Occur in Indiana." Add to this his works on "The Orthoptera of Northeastern America," "The Heteroptera or True Bugs of Eastern North America . . . ," and "The Rhynchophora or Weevils of Northeastern America" (with C. W. Leng), as well as his many shorter papers, and we must concede his place among the great American entomologists.

Blatchley was born in North Madison, Connecticut, in 1859 and died in Indianapolis in 1940. His parents brought him in 1860 to Hendricks County, Indiana, and from that day until his death there was never a more devoted Hoosier. He received the A.B. from Indiana University in 1887, the A.M. in 1891 and was awarded an honorary LL.D. in 1921. He taught in the Terre Haute High School and briefly at Indiana University, but his main contributions were made during his long tenure as State Geologist (1894-1911). His adopted state honored him by re-electing him four times as State Geologist, and his final defeat by a small plurality was probably influenced by differences with the governor over the publication of the work on Coleoptera. In 1912 he was suggested by several newspapers as a suitable Republican candidate for governor.

Blatchley's contributions to entomology, aside from the manifest usefulness of his various manuals, was largely in the field of taxonomy. He described over 350 new species of Coleoptera, 66 Hemiptera, 29 Orthoptera, and numerous new genera and subgenera. In his later life he lived during part of the year in Florida, and his contributions to the knowledge of the fauna of that state were extensive. He was never, however, the strict entomologist. He was the general naturalist and homespun philosopher of nature. An original poem written of him as the dedication of a book by his friend James Whitcomb Riley makes a fitting epitaph:

"He owns the bird-songs of the hills—
The laughter of the April rills,
And his are all the diamonds set
In Morning's dewy coronet."

The second of our four, Edward Bruce Williamson (1877-1933) was born at Marion, Indiana, in 1877, and spent most of his adult life as president of the Wells County Bank in Bluffton. Despite his vocation, however, there has seldom been a more enthusiastic student of insects, and he spent long hours in his laboratory at home working on the classification and biology of his beloved dragonflies. His main contributions to entomology were in the field of taxonomy. He described numerous new species and genera of Odonata, and was the author of more than 100 papers on the group, including many on Indiana forms. In 1929 he gave his large collection of dragonflies to the University of Michigan Museum of Zoology, where it forms the nucleus of a very extensive collection of the group.

Williamson was not only a keen entomologist, but a man of wide interests. He studied birds, collected birds' eggs, and raised irises both as a business and a hobby. Many fellow workers were inspired and sustained by his friendship and interest. No one who knew him has anything but the most complimentary things to say of his character and industry. His death at the early age of 56 was a distinct loss to Indiana and to entomology.

The third, Alfred Charles Kinsey (1894—) occupies a unique position in having achieved prominence in two fields of biology—entomology and human behavior. He was born in Hoboken, N. J., and came to Indiana University in 1920 as Assistant Professor of Zoology. He is at present a Professor of Zoology at Indiana, and director of the Institute for Sex Research. He received the B.S. degree from Bowdoin College in 1916, and the Sc.D. from Harvard in 1920. At the latter institution he worked under William Morton Wheeler and Charles T. Brues.

Kinsey's entomological work represents a distinct departure from that of his predecessors, and he did much to establish the modern techniques of research in taxonomy. His insistence upon massive series, wide geographical coverage, and detailed analysis of every biological aspect of an organism were unique at the time, but have become almost standard practices in present-day taxonomic studies. It is interesting that Kinsey's success in studying human behavior has resulted in part from the application of similar methods. He still asserts that he is primarily a taxonomist dealing with a primarily taxonomic problem.

Kinsey's most important entomological works are: "The Gall Wasps Genus Cynips, A Study in the Origin of Species" (1920), and "The Origin of Higher Categories in Cynips" (1936). He is also the author of numerous short papers, and has described many species, genera, and subgenera of Hymenoptera. One of his many important books outside the field of entomology is "An Introduction to Biology," (1926) which served as an important high school text for many years, and was used widely throughout the United States. Although his recent work is outside the generally accepted field of entomology, he still maintains his extensive collection of Hymenoptera, representing over 5,000,000 galls and 3,500,000 gall insects.

Finally, since it is customary for entomologists to confer titles upon their fellows, I think it only fitting that we confer that of Dean of Indiana Entomologists. I propose that we award it to the fourth of Indiana's internationally famous entomologists, whose contributions have been acknowledged repeatedly elsewhere in this symposium, John June Davis (1885—). It has been largely through his efforts and activities that professional entomology has attained such a high level in Indiana. He has been friend, guide, and enthusiastic sponsor of every phase of our science.