

# **History of Entomology at The University of Maryland**

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## **The First 30 Years**

Entomology has been taught at the University of Maryland from the beginning of the Maryland Agricultural College, fore-runner of the University at College Park. The First Circular or catalogue, dated July, 1859, lists five faculty positions, including the unfilled position--"Professor of Botany, Entymology (sic), and Ornithology." This chair was filled by Townend Glover who was listed in the Second Circular, issued in 1860, as "Entomologist for the United States, Professor of Natural History, Botany and Pomology." A letter written to his former superior in Washington (Patent Office, 1860) concerning an inquiry from Florida on the "hangworm" shows that Glover was present at the College in December, 1859.

Glover was the first entomologist of the United States government, starting in 1854 in the Bureau of Agriculture, then a branch of the Patent Office. Earlier he had made some 2,000 models of fruits which had won an award from the New York Horticultural Society and which were taken to Maryland to be featured in the college catalogues as a teaching aid.

While at Maryland, Glover wrote an illustrated Journal or Field Book to help his students identify the insects they collected. This grew into the Manuscript Notes from My Journal published in 1874. In spare time he made etchings of insects on copper plates, some of which were later published in his Illustrations of North American Entomology.

On his collecting trips about the College fields and woods Glover was accompanied by a child, Salome Lavinia Johns, daughter of Montgomery Johns, M.D., Professor of Agriculture, Chemistry, etc. Miss Johns later married Daniel C. Hopper and was the "adopted daughter" referred to by Dodge, Glover's biographer. Glover gave the Hoppers their home in Baltimore and spent his years of retirement with them. The facts in this paragraph were told the writer in April, 1959 by Anna Perkins Hopper Evans (Mrs. James H. Evans) of Wellesley Hills, Massachusetts, whose mother was Salome J. Hopper. Mrs. Evans knew Glover's widow, who lived with the Hoppers until her death.

In April, 1863 Glover returned to the Federal Government as Entomologist, although his name was carried in the College catalogues as late as 1865. Some of his reports published by the Commissioner of Agriculture, for example, 1872, 1875, and 1876 contain notes on insects collected at the College. Glover's life is covered in the biography by Charles R. Dodge (1888).

Entomology was included as a sophomore subject in the Maryland Agricultural College catalogues from 1872 to 1874. The teacher may have been R. Douglas Williams, Professor of Chemistry and Natural Sciences, or E. J. Henkle, Professor of Natural History, Anatomy, Physiology and Hygiene.

From 1876 to 1879 zoology took the place of entomology as a subject in the Natural Sciences division. Nicholson's text-book was used. In 1880 and 1881 the curriculum was again changed to include beekeeping with zoology. Zoology was taught in the sophomore year and "the raising of swine, sheep, poultry and bees" was a subject for seniors. The teacher was Dr. A. Grabowskii, from the Weisbaden Academy of Agriculture. Text-books listed: Wilson and Edinburg's Elements of Zoology and Quimby's Beekeeping.

The catalogues of 1887 and later drew attention to the need for "protection of crops from

injury by insects or parasites." Entomology was then a subject for the junior year. The teacher was presumably Thos. N. Conrad, Professor of Agriculture. Prof. Charles Valentine Riley, Entomologist for the United States Department of Agriculture, was a lecturer for two years, 1886 and 1887. In 1890 Dice McLaren is listed as Professor of Natural History.

### THE 1890'S

The 1890's put entomology at Maryland on a sound basis, with the beginning of research and regulatory work. The Maryland Agricultural Experiment Station had opened in 1888 as an adjunct to the College. Thos. L. Brunk, Horticulturist, in 1891 gave a report on spraying apples, listing 14 insect species. In 1892 Edwin W. Doran, Professor of Zoology at the College, published the first Experiment Station bulletin from Maryland (No. 16) pertaining to insects, "Insects Injurious to the Grain of Wheat," which contains original observations on a number of storage pests. Doran later taught biology in Illinois and in Louisiana.

In 1893 C. V. Riley of the Department of Agriculture began a cooperative arrangement with the Maryland Agricultural College and Experiment Station. He answered inquiries from Washington while his assistant, Richard Swann Lull, conducted work at College Park. In June, 1894 Riley resigned from the Department of Agriculture and gave full time to the work at Maryland; however his career was cut short by his accidental death in September, 1895. Dr. Riley was a founder and the first President of the American Association of Economic Entomologists.

Two bulletins were issued from Maryland by Riley No. 23, Injurious Insects of Maryland, and No. 32, The San Jose Scale. Mr. Lull assisted in the first, contributing on 3 tobacco insects. Riley also started a reference collection of insects. Lull later worked at Massachusetts State College, and at Yale, where he turned to paleontology. An account of Riley was published by his successor, Johnson, in Station Bulletin 57.

The year 1894 was of great significance entomologically as it marked the discovery of the San Jose scale in Maryland and other eastern states. Experience in California had shown it to be a very serious orchard pest and it spread over the State of Maryland by 1898. Apple, peach, and other fruit trees in all sections succumbed to its attack.

The coming of the San Jose scale hastened the passage of the Maryland Tree and Nursery Stock Law (April 2, 1896, strengthened by further legislation in 1898) and the formation of the State Horticultural Department. Under this law was established the position of State Entomologist. The first incumbent was Willis Grant Johnson, a native of Ohio, who had the degree of Master of Arts from Stanford University and had worked at the University of Illinois. Thus regulatory work began. Johnson also became professor of Entomology for the College, and Entomologist for the Station.

### WILLIS G. JOHNSON AND THE SAN JOSE SCALE

Johnson conducted a vigorous campaign against the San Jose Scale, emphasizing early recognition and destruction of infested trees, and inspection of nurseries to prevent sale of infested stock. He conducted experiments with spray materials and fumigants, both in orchards and nurseries. The fumigation of trees was spectacular but hardly practical. Starting with heavy canvas tents as used on citrus in the West, Johnson and one of the progressive growers, Capt. Robert Emory of Kent County, turned to paper covered boxes (1899), and devised a rig for placing the boxes over the trees. A system of fumigating nursery stock in houses was also developed.

Through wide publicity, Johnson obtained grower cooperation. A full report on the scale (Station Bull. 57) was published in 1898. The pest had killed 50,343 trees, about one-third of the number in 95 infested orchards, as well as a large amount of nursery stock. Johnson left a number of pictures of ruined orchards in several parts of the State. Years later (Tenth Extension Service Report, 1924) horticulturists at Maryland called the San Jose scale a "blessing in disguise, for it necessitated that the grower give better attention to his trees, and caused the development of orchard spray practice which served to control other pests and diseases in addition to the scale." But the orchardists of the 1890's apparently bore severe losses.

Johnson contributed to the programs of the Peninsula Horticultural Society which, since 1886, has followed the fruit and vegetable problems of the Delmarva peninsula. He took a leading part in organizing the Maryland State Horticultural Society, which first met in Baltimore in 1898, and served as the first secretary-treasurer and editor. For some years the report of the annual meeting carried a report of the State Entomologist and an account of the important insects of the year, relating to fruit and other crops as well. The fruit growers repeatedly expressed appreciation of the efforts of both the State Entomologist and State Plant Pathologist in protecting their industry.

In 1899 Johnson reported that a grower in St. Mary's County lost four-fifths of his 600 acre crop of canning peas from pea aphid, then a new pest, and that the loss in the East was \$3,000,000. The next year, by Johnson's direction, the peas in St. Mary's County were planted in rows and various control methods were tested. Best results followed the use of brush and cultivator, knocking aphids from the plants with pine branches and burying them with cultivators. Forty men were employed, working over the planting every 3 days. One hundred acres of peas were sprayed, using hand-powered spray pumps mounted on wagons, but this proved too expensive for the results obtained. Johnson reported (1900) saving 600 acres of peas by the brush method.

Probably on Johnson's order, the College procured four splendid classtique insect' models made by Dr. Theodore Louis Jerome Auzoux in France. A photograph made in 1900 shows Johnson with a class of students, including T. B. Symons, using the models. The class was in Morrill Hall, then a new building. The models represent the silkworm, male and silkworm moths, and *Melolontha vulgaris* (L.), a common scarab beetle of Europe. They have been used in teaching continuously and were refurbished in 1954 and 1956 by museum technicians. The 1903 picture included here shows one of the models.

Willis Johnson left Maryland February 1, 1901, and according to It. P. Gould (1900), went to work on the editorial staff of the *American Agriculturist* in New York.

Johnson's assistants included E. Dwight Sanderson who published on sweet potato insects, then left Maryland for the Delaware Agricultural College; Harris P. Gould, who later went into pomology with the U. S. Department of Agriculture,; Sherman, Jr., who left Maryland to become State Entomologist of North Carolina; and Thomas B. Symons. Dr. Symons remembers Johnson as an inspiring teacher, a forceful administrator, and an enthusiastic publicist.

A contemporary of Johnson's at Maryland Agricultural College was Martin P. Scott, Professor of Natural History and later Professor of Biology. A College announcement of short winter courses in Agriculture to begin January 1896 lists Dr. Scott as giving five lectures in economic entomology. This was the winter before Johnson's arrival.

The first mention of Entomology as a Department in the College catalogues seems to be in the one for 1897-98. Then for 20 years there was the Department of Entomology and

Zoology, after which the two became separate--Entomology in the College of Agriculture, and Zoology in the College of Arts and Sciences. For several years in the early 20's it was called the Department of Entomology and Bee Culture.

#### THE TWENTIETH CENTURY

Succeeding Johnson for a short period was Harris P. Gould, Acting State Entomologist from February to July, 1901. He issued State Horticultural Department Circular 29, A plain talk with those who have San Jose scale to combat. Gould collaborated with Johnson and C. O. Townsend in several Experiment Station bulletins mainly from the viewpoint of the pomologist.

The second State Entomologist was A. L. Quaintance, appointed in June 1901. He also held the title of Entomologist and Associate Horticulturist in the Experiment Station. Quaintance had come from study and work in Florida and Georgia and was a thorough scientist. He conducted the regulatory and biological work on the San Jose scale (1,336,731 trees inspected for scale in 1902) and published an account of the cicada in Maryland, Bulletin 87. Quaintance published several short papers on Maryland entomology in the Proceedings of the Association of Economic Entomology, and in the Maryland State Horticultural Society Reports. His assistants were Ralph S. Smith, who later went to Georgia, and T. B. Symons.

Dr. Quaintance used local inspectors in the orchard surveys and in helping the fruit growers with their insect problems. Ten "Kerowater" pumps, which produced a mixture of kerosene and water, were used in 1901 in demonstrating scale control through sprays. In 1902 Quaintance introduced to Maryland the lime, salt and sulphur wash for San Jose scale. He left the State March 1, 1903 to head the work on fruit insect investigations in the Bureau of Entomology, U.S.D.A.

#### THE DEPARTMENT OF ENTOMOLOGY UNDER SYMONS<sup>2</sup>

Thomas Baddeley Symons, native of Talbot County, came to Maryland Agricultural College to study general agriculture in 1898, but became interested in entomology under Willis Johnson. In 1900 Johnson and Symons made a tour of the orchards in western Maryland, photographing orchards and surveying damage by San Jose scale. Washington County then had 820,000 peach trees, Kent County on the Eastern Shore had 480,000, eight times as many as now in the two counties. There were "fruit trees everywhere," recalls Symons, but San Jose scale, yellows disease and neglect cut the numbers drastically. Symons graduated in entomology in 1902 and was appointed Assistant Entomologist under Quaintance. He had studied a summer at Cornell and taught in his senior year at Maryland. He secured his Master's degree under Quaintance, with work on San Jose scale biology, then visited nurseries in France and England. In 1905 he became State Entomologist (after 2 years as Acting State Entomologist) and taught zoology and entomology.

The 1902 report of the Horticultural Society contains a spray calendar for fruits and vegetables by F. H. Blodgett, plant pathologist, and T. B. Symons. It has an interesting form--pest control practices for each month of the year.

Homemade lime sulfur for scale control was developed and widely demonstrated in the first decade of the 20<sup>th</sup> century. The material was boiled in wood and metal troughs designed from the hog-scalding trough used in Talbot County, Symons's native county. Demonstrations were held even with snow on the ground. Manufacture of lime sulfur gradually left the farm and became a commercial process. Dr. Symons's assistants were F. C. Bishopp, A. B. Gahan, G. P. Weldon, L. M. Peairs, and E. N. Cory.

Dr. Symons recalls the many orchard expansions during the decade. For many years he was Secretary-Treasurer of the Maryland State Horticultural Society. This organization then held its annual meetings in Baltimore and staged large exhibits of fruits, flowers, vegetables, machines and sometimes entomological specimens. These exhibits held year after year stimulated interest in growing better produce.

The State Horticultural Department administered by T. B. Symons, State Entomologist, and J. B. S. Norton, State Plant Pathologist, was a real force in the progress of Maryland Agricultural College in a critical period. There were strong enemies of the College who tried to reduce its support. But "State Hort" had money for travel, was able to show the value of scientific agriculture, and made many friends for the College in all areas of the State. Dr. Symons was a charter member of the Entomological Society of America.

#### T. B. SYMON'S ASSISTANTS

Fred C. Bishopp, who had come from Colorado, worked at Maryland 3 months in the winter of 1903. He found Maryland a busy place with nursery inspection, teaching, and fruit judging all demanding attention at once. He left for employment with the U. S. Bureau of Entomology, where he advanced rapidly. He was elected an Honorary Member of the Entomological Society of America in 1959.

Arthur B. Gahan came to Maryland from Kansas State College in 1904 and served until 1915. One of his first jobs (noted in Bulletin 101) was the preparation of 30 exhibition cases with insects and examples of injuries to crops. The principal work was the inspection of nurseries for San Jose scale and the condemnation of infested stock. Some nurserymen did not take these losses calmly and the inspectors were not always welcome--but the work was carried through. Mr. Gahan recalls the San Jose scale as the "big bug-a-boo."

Mr. Gahan also taught entomology. Two of his pupils were Ernest Ralph Sasser, and Ernest Neal Cory.

In 1906 Symons, Coffin and Gahan published on the mosquitoes of Maryland. T. Homer Coffin, who was on the Johns Hopkins University staff, and Gahan made a survey of mosquitoes and their breeding places around the city of Baltimore.

In 1909 Gahan was assigned to research with the Experiment Station. Two bulletins resulted from this work, one on greenhouse insects and one on the Aphidiinae of North America. From the latter, Maryland bulletin 152, grew his life work, the taxonomy of certain parasitic Hymenoptera. This bulletin came to the attention of F. M. Webster, in charge of the U. S. Bin-can of Entomology's Division of Cereal and Forage Crop Insects, and in 1913 he engaged Gahan to identify parasites, particularly those of the greenbug. For two years, working space was provided on the Maryland campus; then Gahan moved to Washington.

George P. Weldon was an assistant at Maryland in 1906 and 1907, working on San Jose scale control. He had part in tree fumigation and dipping experiments. Mr. Weldon left Maryland for California.

Leonard M. Peairs, also from Kansas, was at Maryland from 1908 to 1910. In Bulletin 131 he is credited with superintending experiments on fumigation and nursery stock dipping. In 1909 a study of the San Jose scale on osage orange hedges by Symons and Peairs, showed that the hedges were a nuisance to the orchard industry. Peairs left Maryland for West Virginia where he distinguished himself as teacher, author, and as editor of the Journal of Economic Entomology. He was elected an Honorary Member of the Entomological Society of America in 1954.

Orville G. Babcock worked in entomology for 2 years - 1910 to 1912. He had a part in lime sulfur spray tests for San Jose scale and terrapin scale, and also assisted in teaching. Mr. Babcock some years later was employed by the United States Department of Agriculture on animal insect parasites.

Ernest N. Cory was appointed as assistant entomologist in 1909, the year he was graduated from Maryland Agricultural College. From then until 1914 he taught entomology, inspected orchards, and had a part in a number of Experiment Station bulletins with T. B. Symons and other associates. These bulletins included work on codling moth, San Jose and terrapin scales, flies and insects on fruit, shade trees and vegetables. Cory was senior author of Bulletin 176 on peach tree borer.

Students in this period, 1909-1914, whom Ernest Cory assisted in teaching were William H. White, Allen B. Duckett, F. X. (Tom) O'Neill, Reginald V. Truitt and Max Kisfiuk, Jr.

#### AN IMPORTANT EVENT OF THE SECOND DECADE

Passage of the Smith Lever Act by Congress in 1914 established the Agricultural Extension Service with cooperative work between Nation, State, and County. Some Maryland counties already had agricultural agents; soon after 1914 all counties were supplied with county agents and home demonstration agents. T. B. Symons was appointed to head this work in Maryland; thus his efforts were expanded to cover the whole field of Agriculture.

Dr. Symons stated in 1915 (First Maryland Extension Service Report) that the first regular pruning and spraying demonstrations in Maryland were held in 1903. The Experiment Station Report for 1902-03 had said "the work of the Entomologist in the control of insects, particularly the scale, is--a very valuable aid to orchardists, and will enable them to save and protect thousands of dollars now invested in this industry ...."The report spoke of "verification and demonstration experiments."

The Smith-Lever Act put the dissemination of information, or extension work, on an equal basis with teaching and research.

#### THE SUCCESSION OF ERNEST N. CORY

When Symons became Director of Extension, Cory succeeded to the positions of Head of the Department of Entomology and Zoology, and State Entomologist. Thus began in 1914 a career of progressive service that ran for 42 years. Dr. Cory inherited several old problems, such as San Jose scale and nursery inspection, and assumed many new problems with the introduction of new pests, and with the growing public consciousness of the importance of all insect, s. The house fly. greenhouse and ,ornamental pests, hessain attention From 1911 to 1920. With the cooperation of the United States Department of Agriculture, Cory demonstrated a system of trapping house fly maggots from stable manure; a Maryland student, Max Kisliuk, Jr., assisted in this work.

Philip Garman of Kentucky was appointed Assistant Entomologist with the Experiment Station, and published on geranium pests, *Tarsonemus pallidus* Banks and others, and on oriental fruit moth, an insect which was accidentally introduced from Japan a few years before on flowering cherry trees. Garman worked in Maryland from 1916 to 1919. Two young men from West Virginia were employed by the government in 1918 to scout the Eastern Shore for oriental fruit moth. These were Albert F. Vierheller and Joseph H. Boyd, both of whom later turned to horticulture.

In the summer of 1916 Oliver I. Snapp came to Maryland as graduate assistant, but

shortly returned to Virginia to teach. At Maryland he worked on the woolly apple aphid. Another inspection and extension assistant employed about this time was O. K. Courtney.

The increased need of food in World War I stimulated the publication of the first Maryland extension bulletins on entomology, on fruit insects, hessian fly, and insects and rodents in stored products. Harold S. McConnell from South Carolina was engaged in fruit insect extension work from 1916 until he left for service with the Army Medical Corps in 1918. He returned to the University in 1924. "Mac" recalled the early meetings of the Entomological Society of Washington in Saengerbund Hall. Serious entomological discussions in several European and American accents were mixed with refreshment and fellowship at every meeting.

Teacher of beginning zoology and entomology in 1915 was J. R. Christie who later became a nematologist in government service. From 1916 to 1921, when a separate Department of Zoology was formed, these subjects were taught by Charles J. Pierson, a native of Ohio trained in Nebraska and California.

The writer's first knowledge of entomology came with Prof. Pierson's teaching. I remember especially his vivid story of the outbreak of the Rocky Mountain locust in the Plains states, which occurred during his boyhood in the 1870's. The locusts, or grasshoppers, caused great destruction so that for 2 years little could be produced on the Pierson farm.

Incidentally, in 1918 entomology was a required course for all students in Agriculture at Maryland.

R. V. Truitt was appointed Assistant Zoologist in 1919 and, under Cory's direction, began his far-reaching work with the oyster and crab industries, which was later conducted at Solomon's Island.

Succeeding Garman in the Experiment Station in 1920 was Clyde C. Hamilton, who worked for several years on ornamental plant insects, European red mite and other fruit pests. Cory and Hamilton devised a practical control, published in Bulletin 272, for boxwood leaf miner, a pest new to Maryland in 1913. Chrysanthemum gall midge was treated in Bulletin 269 and European red mite in Bulletin 264.

Clarence B. Nickels of Mississippi was a graduate student in 1919 and 1920. The writer remembers his work on the corn root aphid. Nickels was also an assistant in apiculture and peach tree borer studies.

#### THE UNIVERSITY OF MARYLAND--1920

An important change at the end of this decade was the amalgamation of the College Park schools with those in Baltimore to form the present University of Maryland. In 1916 the Maryland Legislature had taken over the old Maryland Agricultural College from the stockholders and made it the Maryland State College. Then the College of Agriculture was organized and the gradual growth of the Department of Entomology continued.

Ernest Cory continued as head for another 36 years. The many problems that arose during this period centered mainly about introduced insects: Mexican bean beetle, 1924; Japanese beetle, 1926; European corn borer, 1932; green peach aphid (as a pest of tobacco) 1946; and alfalfa weevil, 1952. Mosquito control received increasing emphasis.

The advent of DDT during World War II and the many other insecticides that appeared in the following decade brought new responsibilities for the Department. Dr. Cory was on the conservative side in recommending materials that might endanger human health. His Use and Limitations of DDT appeared in 1946. Then as a result of his insistence, parathion was recommended to Maryland fruit growers only with strong warnings against use without full

protection to operators. The only other use of parathion recommended in Cory's administration was on tobacco and vegetables by airplane application, where operators with special training are involved.

Dr. Cory took a prominent part in the National and Eastern Plant Boards, organizations aimed at nation-wide coordination of quarantine operations. He was chairman of the Eastern Plant Board in 1934, and secretary for a long period in the 40's and 50's.

Finally Ernest Cory worked for years to promote the profession of entomology on a national and international basis by leading in the activities of the American Association of Economic Entomologists. He was Secretary-Treasurer and Business Manager of the Journal of Economic Entomology from 1936 to 1953, except for the year 1947, when he was President of the Association. For his presidential address he used the topic, "Totalitarian Insects." He worked diligently for the union of the two national entomological societies to form the present Entomological Society of America in 1953. That Society elected him an Honorary Member in 1954. Dr. Cory retired July 31, 1956. At a congratulatory dinner given the preceding May addresses were made by T. B. Symons, his former director, and P. D. Sanders (1957), a former worker in the Department and now for many years editor of the Southern Planter, Richmond, Va. On this occasion the Ernest N. Cory Scholarship fund of \$3700, raised by his friends, was presented. The income from this fund is given each year to an outstanding Senior or Junior in the College of Agriculture, preferably one majoring in entomology.

#### DEPARTMENT ROSTER, 1922 TO THE PRESENT

The many other members of the Department, 1920 to the present can only be listed with their chief contributions. Here are those who served five years or more and those who are presently members of the Department.

GEORGE S. LANGFORD, 1922 to date. Japanese beetle, nursery inspection, shade tree and ornamental insects, flies and mosquitoes. Editor of ENTOMA 1943-1944. Appointed State Entomologist, 1957.

PAUL D. SANDERS, 1922-1930. Extension entomology, fruit insects.

HAROLD S. MCCONNEL, 1916-1918 and 1924-1958. Oriental fruit moth, European corn borer surveys and parasites, taxonomy of scale insects.

HAROLD H. SHEPARD, 1925. Corn earworm. 1947 to date. Teaching: insecticides, (part-time).

PAUL, KNIGHT, 1925-1943. Teaching: general entomology.

R. E. SNODGRASS, 1925-1947. Teaching: insect morphology, (part-time).

LEWIS P. DITMAN, 1927 to date. Corn earworm, pea aphid and other canning crop insects; insecticide application, winter hardiness in insects.

GEORGE J. ARRAMS, 1927 to date. Apiculture and teaching; extension, bee disease control. Organizer of Eastern Apicultural Society, 1955.

CASTILLO GRAHAM, 1928 to date. Extension entomology, fruit insects, Cumberland - Shenandoah fruit workers conference.

SAMUEL, L. CROSTHWAIT, 1931--38. Vegetable insects, mosquitoes.

ENGEL L. R. GILBERT, 1934--1951 (intermittent). Japanese beetle, cattle lice.

J. FRANKLON YEAGER, 1936--1946. Teaching: insect physiology (part-time).

RUFUS H. VINCENT, 1937-1942. Mosquitoes, Japanese beetle milky white disease.

JULIAN J. CHISOLM, 1938--1948. Photography.

WILLIAM E. BICKLEY, 1940--41 and 1949 to date. Teaching: taxonomy, medical entomology, graduate direction; mosquitoes. Head of Department since 1957.



ELLZABETH E. HAVILAND, 1943 to date. Teaching: general entomology, morphology, greenhouse insects, animal parasites.

THEODORE L. BISSELL, 1947 to date. Extension entomology, insects of hay crops, exhibits. Maryland Insect Notes.

SAMUEL C. MUNSON, 1947-1958. Teaching: physiology (part-time).

JAMES R. FOSTER, 1948 to date. European corn borer, Japanese beetle, mosquitoes. Photography.

REECE I. SAILER, 1951 to date. Teaching: ecology (part-time).

WALLACE C. HARDING, JR., 1951 to date. Japanese beetle, survey entomology, insects of ornamentals.

WARREN T. JOU~SON, 1952 to date. Nursery inspection, chestnut insects, pests of ornamentals and livestock insects. Teaching: regulatory entomology.

ELROY R. KRESTENSEN, 1955 to date. Fruit insects.

FLOYD P. HARRISON, 1955 to date. Teaching: horticultural and field crop insects. Research on vegetable insects.

STANLEY R. JOSEPH, 1956 to date. Mosquito Control.

E. ELWOOD LYNCH, 1956 to date, Mosquito Control

JOSEPH THOMAS WHITLAW, 1956 to date. Insecticide Residues.

CHARLES W. McCOMB, 1957 to date. Nursery inspection, insects of ornamentals.

JACK COLVARD JONES, 1958 to date. Teaching: physiology.

ALLEN L. STEINHAUER, 1958 to date. Research on forage crop insects.

LESTER F. GEORGE, 1958 to date. Mosquito Control.

LAWRENCE W. SMITH, JR., 1958 to date. Mosquito Control.

ROBERT A. BERRY, JR., 1959 to date. Mosquito Control.

JERRY MALLACK, 1959 to date. Mosquito Control.

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#### FOOTNOTES

1 Material for this history has been drawn from the catalogues, reports and bulletins of the University of Maryland and its divisions; manuscript reports of the State Horticultural

Department and Entomology Extension work; U. S. government reports and reports of horticultural societies and various entomological journals. Some of the publications from outside the University are cited. Thanks are due to many associates for help in this work, and especially to Ernest Cory for his continuous encouragement.

2 This section is augmented with personal recollections given the author by Dr. Symons in March 1953, three years after his retirement as Director of Extension. his enthusiasm and broad grasp of forces and trends are always an inspiration.