

CHAPTER VIII

FROM WALSH TO COWAN

(1860 to 1865)

BENJAMIN DANN WALSH (1808-1869)

Many of our early entomologists were quite versatile, and the life of Benjamin Dann Walsh is an example of varied activities in different fields. Mr. Walsh was born in Frome, Worcestershire, England, September 21, 1808. Little is on record of his detailed career in England. He graduated at Trinity College, Cambridge, and he was intended for the ministry by his parents, but his own objective was different. He published a large pamphlet on university reforms, nearly all of which were eventually carried out, and in addition to contributing to Blackwood's and other English magazines, he wrote numerous newspaper articles. In 1837, he published Walsh's *Comedies of Aristophanes*. This was to have been finished in three volumes, but owing to publication difficulties, only one was issued, containing the Acharians, the Knights and the Clouds, all translated into English metres.

In 1838, he married and came to America, settling in Henry County, Illinois, near Cambridge, where he bought a three hundred acre farm on which he intended to lead the life of a philosopher. In fact he led a secluded life on this farm for thirteen years, and did all his own work, even to the extent of making his own shoes and mending his own harness. His health failing, he moved to Rock Island, Illinois, in 1851 and engaged in the lumber business for about seven years, at the same time submitting many fugitive pieces to the newspapers, principally on topics of political interest. He hated slavery and oppression and was a radical Republican. Suspecting in 1858 that the City Commission was defrauding the city, he ran for alderman, was elected, exposed the frauds, and resigned. During this time he made many enemies. After retiring from the lumber business, he built a row of buildings in the city, these being known as Walsh's Row. Although he had made a small collection of insects in England, he gave no attention to insects in America until after his buildings were erected, his first published account being a lecture he delivered before the Illinois State Horticultural Society at Bloomington, Illinois, in January, 1860. From 1862 until 1866, he contributed about a dozen scientific papers to the *Proceedings* of the Boston Society Natural History, the Entomological Society of Philadelphia, and the Academy of Natural Sciences of Philadelphia. One of these (*Proc. Ent. Soc. Phila.*, vol. 10, pp. 294-311) dealt with the genera of Aphidae found in the United States, and at that time (1862) the total number of species described from this country amounted to only seventy. Another was entitled "List of the Pseudo-Neuroptera of Illinois contained in the cabinet of the writer, with descriptions of over forty new species; and notes on their structural affinities" (*Proc. Acad. Nat. Sci. Phila.*, vol. 14, pp. 361-402). Still another dealt with certain colopterous, lepidopterous, and dipterous larval forms (*Proc. Boston Soc. Nat. Hist.*, vol. 9, pp. 286-318). He also wrote on dimorphism in the hymenopterous genus *Cynips* (*Proc. Ent. Soc. Phila.*, vol. 20, pp. 443-500), a subject in which Osten-Sacken was interested and about which they corresponded. At that time Walsh said that the classification of Cynipidae was in a state of chaos. Guest gall flies, because of their variability in size and color, were sometimes described two or three times.

In the *Proceedings of the Entomological Society of Philadelphia* (vol. 3, pp. 207-240) under the title "On certain entomological speculations of the New England school of naturalists," Walsh criticizes Agassiz's views as outlined in his book on Lake Superior. In volumes 3 and 5 of the *Proceedings of the Entomological Society of Philadelphia*, Walsh set forth his views on phytophagic varieties and phytophagic species, supporting his opinion that in some but not

all cases, difference of food was accompanied by differences in coloration, or structure, or both, in one or more stages of particular insects.

Walsh was interested in economic insects also, and contributed regularly to the *Prairie Farmer* of Chicago, Illinois, the *Illinois Farmer* of Springfield, Illinois, the *Valley Farmer* of St. Louis, Missouri, and to other farm papers. He tried to arouse the farmers to the large losses due to insects. In 1861, he wrote on "Insects injurious to vegetation in Illinois" (*Trans. Ill. State Agric. Soc.*, vol. 5, pp. 469-483), taking up in particular the armyworm, white grubs, leafrollers in clover hay, lepidopterous larvae on roses, etc. The armyworm, and its enemies, was the subject for additional pages in the transactions of the same society.

In October, 1865, the Entomological Society of Philadelphia commenced its monthly called *The Practical Entomologist*, edited by E. T. Cresson, Aug. R. Grote and J. W. McAllister. Soon, Mr. Walsh was added to the list as associate editor from the west and finally, in the second volume, he became the sole editor. The publication, however, ended in September, 1867. During the winter of 1868-9, Walsh was appointed State Entomologist of Illinois at a salary of \$2,000 per year. He really started his duties in June, 1867, without waiting for the action of the legislature, and his first report as acting state entomologist was issued in 1867 as an appendix to the *Transactions of the State Horticultural Society* for that year. In 1868, with Riley, the *American Entomologist* was started.

On November 12, 1869, while walking towards Moline on the tracks of the Chicago and Rock Island Railroad, Walsh was struck by a train and his left foot was mangled. It was amputated above the ankle and for a few days he seemed to be recovering, but he died on November 18.

Returning to Walsh's criticism of Agassiz, in Walsh's paper "On certain entomological speculations of the New England School of Naturalists" (*Proc. Ent. Soc. Phila.*, 1864, vol. 3, pp. 207-249) he takes issue with Agassiz, who had stated in his book on Lake Superior, in an unqualified manner, that the insects of the temperate zone of North America "differ specifically throughout," from those of Europe, and subsequently that,

"quite a number of European insects have been introduced into this country along with plants, among which may be mentioned some showy butterflies, as *Vanessa atalanta*, *cardui* and *Antiopa*, which are very erroneous considered by some entomologists as native Americans."

Walsh said that, owing to the influence exerted upon American naturalists by Agassiz for many years, most entomologists in this country had become devoted believers in his theories and that American describers of new species of insects,

"have generally been content with ascertaining that a species supposed to be new had not been hitherto described as American, and have troubled their heads but little as to whether the same species might not have been described as exotic."

Walsh made out a good case against Agassiz and listed as evidence the names of over three hundred species in nine orders from the writings of thirty-six entomologists who testified to the existence in the Old and New Worlds of identical species which could not be supposed to have been introduced.

In the same paper, Walsh also took the opportunity of pointing out that Agassiz had totally "misapprehended and misstated the Darwinian Theory" in his recent work, *Methods of Study*. And, in addition,

he criticised Prof. J. D. Dana's new classification of insects based on Dana's new principle of cephalization (*Silliman's Journal*, vol. 37, pp. 1033). Walsh protested in the name of science,

"against this arithmetical monomania which is perpetually seeking to fetter the limbs of Nature in mathematical formulae. Nothing is easier than by subdividing some natural groups and uniting others, and by giving prominence to certain characters and keeping others in the background, to form an artificial system of classification based upon any assignable arithmetical number from two up to ten. And when such Systems are formed—what are they worth? Absolutely nothing."

Dr. A. S. Packard, Jr., reviewed Walsh's remarks in volume 6 of the *Proceedings*, 1866 (pp. 209-218), and pointed out some holes in Walsh's thinking, and conclusions. Dana replied to Walsh in the *American Journal of Science and Arts* for March, 1866, and Walsh, under the title "Prof. Dana and His Entomological Speculations" (*Proc. Ent. Soc. Phila.*, vol. 6, 1866, pp. 116-120), replied that he had been misquoted three times by Dana and that he was ready to stand by the printed record.

RICHARD HILL (1795-1872)

That versatile and famous son of Jamaica, Richard Hill, was the author of several entomological papers that are now quite difficult to obtain. The *Jamaica Quarterly Journal* for 1861 carried three of his articles, one on insect vision, one on the sleep of insects and another on the cockroach. To the *West India Quarterly Magazine* for 1861, he contributed a paper on "The Walking Leaf Mantis," and to the *Jamaica Almanac* for 1843, an article on "The Jamaica Trap Door Spider."

According to Mr. Frank Cundall's account in the *Journal of the Institute of Jamaica* for July, 1896, Richard Hill was born at Montego Bay on May 1, 1795, his father having come from Lincolnshire to Jamaica in 1779. At an early age, Richard was sent to relatives in England and when old enough he entered Lady Huntingdon's college at Cheshunt. After his fourteenth year, he was entered in the Elizabethan Grammar School at Horncastle to finish his education.

Upon the death of his father in 1818, Hill returned to Jamaica. When the colored inhabitants of the island in 1823 began their agitation for equal privileges with the whites, Hill helped the movement with his writings and with his ability. In 1826, he went to England and there tried to obtain the help of the Anti-Slavery Party. Hill handled the petition from the colored people of Jamaica to the House of Commons and tried to educate the public of England about the real character of West Indian slavery. After living several years in England, he was commissioned by the Anti-Slavery Party to study social and political conditions in Santo Domingo, as well as its natural resources. He arrived at Port-au-Prince on June 16, 1830, and stayed on the island nearly two years. His report was published in both English and French. He sailed for England May 3, 1832, stayed there several months and then returned to Jamaica for the remainder of his life.

From 1834 until 1872, Hill was one of the stipendiary magistrates of the island, whose duties consisted in adjusting disputes between farmer slaveholders and their "apprentices." In 1835, Hill was appointed under-secretary to the Governor, and remained in that position until the time of abolition. In 1837 and 1838, he was in the House of Assembly, and from about 1855 to 1865 he was a member of the Privy Council. As his political career ended early, the balance of his life was devoted to his duties as a magistrate and to his literary and natural history activities. He was interested in the botany of the West Indies, in their agriculture, their ornithology, their ichthyology and their anthropology. Mr. Edmund Gosse knew Hill, and liked him and called him his friend.

Hill contributed to the scientific journals of England and America, was a member of various learned societies, and corresponded with

numerous scientists including Darwin. His contributions to literature were diverse and extensive, and in addition to scientific and agricultural subjects, they included poetry. He died, unmarried, at Spanish Town, where he had lived for many years, on September 28, 1872, at the age of seventy-eight. Much more could be written about this naturalist, his work, and his influence.

EZRA TOWNSEND CRESSON (1838-1926)

At the August 12, 1861, meeting of the Entomological Society of Philadelphia, there was read a letter on the "Capture of *Strategus anteus* and *Tetraops canteriator*," by a young man of twenty-three, who was destined to become, as Dr. Philip P. Calvert has stated, "one of the most kindly, helpful and amiable figures in American Entomology." This young man was Ezra Townsend Cresson, whose interest in entomology had been kindled and stimulated by James Ridings, an ardent collector and later Cresson's father-in-law.

Cresson was one of the originators and founders of the Entomological Society of Philadelphia, organized early in 1859, and was its first secretary. In May 1859, he moved to Texas, hoping to engage in the raising of cattle, but the venture was not successful, and in September of that year he was back in Philadelphia. When the Society started its *Proceedings* in 1861, Cresson and Charles A. Blake toiled over the publication, getting it out on a small hand press. Cresson was the compositor and helped in the press work. And all his life he was identified with the publications of the Society. In 1865, when *The Practical Entomologist* was started, Mr. Cresson handled the business correspondence. In 1866, he accepted the curatorship of the Society, a precarious and poorly paid position.

In addition to his employment, first as secretary to Dr. Thomas B. Wilson, then with the Franklin Fire Insurance Company of Philadelphia, and to his editorial duties and collecting activities, Cresson wrote many papers on the Hymenoptera and described many species. His first extensive paper was a "Catalogue of the Cicindelidae of North America" (*Proc. Ent. Soc. Phila.*, vol. 1, pp. 7-20). This was printed in 1861 and listed the described species with references to sources of descriptions, habits and localities. Never again did he write about Coleoptera. His second paper, also published in the *Proceedings of the Entomological Society of Philadelphia* (vol. 1, pp. 33-39), was a "Catalogue of the described Species of Tenthredinidae and Uroceridae inhabiting North America." He believed that students needed a catalogue of the described species of North American Hymenoptera and he proposed to publish a series of catalogues of American species, starting with the sawflies and continuing with other families, as time permitted, or until the appearance of M. Saussure's expected work on the Hymenoptera of North America.

Workers in Coleoptera, Diptera and Lepidoptera already had available Melsheimer's *Catalogue*, Osten-Sacken's *Diptera*, and Morris's *Lepidoptera*. Catalogues of other Hymenopterous families continued to come from Mr. Cresson, as well as descriptions of new species, and up to 1865 his authorship amounted to some seventeen papers, all of which were published in the *Proceedings* of his Society. For many years after, Cresson devoted himself to the Hymenoptera of America, Cuba and Mexico, producing up to 1882 some sixty-five catalogues, monographs, and synopses, ending in a *Synopsis of the Families and Genera of the Hymenoptera of America north of Mexico* (together with a catalogue of the described species and bibliography), a work of 350 pages, published in 1887 by the American Entomological Society. A detailed account of his life, his scientific work, some of his letters, together with estimates of his work by various specialists, was ably written by Dr. Philip P. Calvert in 1928 and published by the American Entomological Society.

Mr. Cresson was born at Byberry, Philadelphia, Pennsylvania, on June 18, 1838, and was educated in the public schools of Philadelphia. As a boy, he once took part in a balloon ascension under Mons. Godard. The balloon started from Lemon Hill, Philadelphia (now in Fairmount Park), July 16, 1857, and descended in Montgomery

County, seven miles north of Norristown, Pennsylvania. Cresson contributed an account of the voyage to the *Pennsylvania Inquirer* of July 17, 1857.

As an official of the Entomological Society and as a working entomologist, Mr. Cresson corresponded with many American entomologists, and in his papers are many references to his friends and associates. Nearly all his life was lived in Philadelphia. In 1883, he moved to Swarthmore, Pennsylvania, but after his wife's death in 1909 he lived variously with his married children. On April 19, 1926, he died at the home of his son, Ezra T. Cresson, Jr.

WILLIAM HENRY EDWARDS (1822-1909)

The name of William Henry Edwards will always be remembered in connection with the beautifully illustrated volumes issued by him on the *Butterflies of North America*. The study of diurnal Lepidoptera was his life-long work. The first series of this three-volume work was issued in April, 1868, and in 1872 the plates were published. The second series, begun in May, 1874, was finished November, 1874, and contained fifty-one plates. Mr. Edwards, finding himself without funds to publish his third volume, thought of offering his collection of North American butterflies to the trustees of the British Museum in order to obtain the money to enable him to continue his work. However, Dr. W. J. Holland, in order to preserve the types in America, offered to pay the bills for the publication of the third volume, as they became due, on condition that Edwards turn over to him his collection when he had completed his studies. This was done. Doctor Holland paid the drawing, lithographing and printing bills, and in that way the third volume was produced. The three volumes are a mine of information, as Edwards studied the eggs, larvae, pupae, various larval stages, life histories, food plants, habits, etc. He was careful and accurate in his work.

Mr. Edwards was born in Hunter, Greene Co., New York, March 15, 1822. He graduated from Williams College in the class of 1842, and was admitted to the New York bar in 1847. In 1846, he traveled up the Amazon River on a natural history trip, and wrote a book on his trip, *A Voyage Up the Amazon*, in 1847. He described many new species of diurnal Lepidoptera, and between 1861 and 1865 some thirteen of his papers were printed in the *Proceedings of the Academy of Natural Sciences of Philadelphia* (vol. 13-14) and in the *Proceedings of the Entomological Society of Philadelphia* (vol. 1-5), for the most part, in the latter. All told, his writings number about one hundred papers.

Edwards died at Coalburgh, West Virginia, April 4, 1909. During the last twenty years of his life he gave up entomology and became interested in the study of Shakespearian literature. In 1900, he published *Shaksper not Shakespeare*. At the time of his death, the *Entomologists' Record and Journal of Variation*, London, England (Oct. 1909, pp. 239-240), said that,

"A labour that ended in Edwards handing over his collection under the conditions above described, must have sapped his entomological life's blood. No wonder we read in the notices of his death in the American magazines, that, for the last 20 years of his life, Edwards gave up the study of entomology, and took to the study of Shakespearian literature. Dr. Holland's statement allows us now to picture clearly what entomology lost by the failure of individual entomologists to support the best work on Lepidoptera that America ever produced. Possibly, at least, two more volumes like the others might have been produced, had they both been supported, and in their place we have a wordy warfare as to how Shakespeare's name ought to be spelt!!"

EDWARD NORTON (1823-1894)

The first importer of Guernsey cattle into this country, a breeder of fine grades of cattle and for many years secretary of the American Guernsey Cattle Club, was also one of the few naturalists in this country to devote himself exclusively to the study of a single family of Hymenoptera. Although he was well acquainted with all hymenop-

terous families, Mr. Edward Norton, the man in question, specialized in the Tenthredinidae, describing upwards of two hundred and fifty species. His descriptive papers first appeared in the *Proceedings of the Entomological Society of Philadelphia* (1862-1864, vol. 1, 3). He also published in 1860 in the *Boston Journal of Natural History* and in the *Proceedings of the Boston Society of Natural History* in 1861 and 1862. His monograph on the sawflies of North America appeared in 1867-1869 (*Trans. Amer. Ent. Soc.*).

Mr. Norton was born in Albany, New York, in 1823 and died at Farmington, Connecticut, April 8, 1894. He graduated from Yale in 1844 and then traveled in Europe. Upon his return he spent several winters in the south in order to ward off lung trouble. His work was carefully done, but for many years previous to his death he took no active part in entomological things.

ALPHEUS SPRING PACKARD (1839-1905)

About this time, the celebrated investigator and teacher, Dr. A. S. Packard, Jr., became active. Few entomologists realize the extensive entomological work done by Doctor Packard, who was interested in the correction of error and the conveyance of knowledge. All his publications were written for such purposes. As a systematist he was primarily interested in the general arrangement of the Class and he was the first American entomologist who accepted the necessity of breaking up some of the Linnaean orders and who proposed a system of his own. His comprehension of entomology as a whole and his knowledge of the literature were extensive and sound. Almost in every order Packard did some systematic work, or discussed some classification point. He had a grasp of detail, in addition to his general knowledge, and his work was of a uniformly high standard.

His first appearance in print was perhaps a letter he wrote to *The Entomologist's Weekly Intelligencer*, a penny paper edited by H. T. Stainton (1859, vol. 7, pp. 14-15) stating that he wished to make a special study of the Geometridae, and asking for assistance from British entomologists. From 1859 until 1865, he has fourteen titles credited to him in the bibliography prepared by T. D. A. Cockerell. This is in comparison with a total of five hundred and seventy-nine, his final output. So at the end of the period covered by this work, Packard was only beginning his contributions. In 1860, he contributed articles on economic entomology to the *Maine Farmer*. In 1861, his report on the armyworm and grain aphid appeared in the sixth annual report of the Maine Board of Agriculture (pp. 130-145). The same report (pp. 373-376) also contained his "Report on the insects collected on the Penobscot and Alleguash Rivers during August and September, 1861." In 1862, there was published in the second annual report upon the natural history and geology of the state of Maine (*7th Ann. Rept. Me. Bd. Agric. for 1862*), his paper on how to collect and observe insects, which he hoped would result in the extension of the knowledge of the habits and forms of the noxious and beneficial insects of Maine. Everything which the collector and student needed to know, at that time, was included. The books that he thought were necessary included Harris's *Treatise*, Doctor Fitch's *Reports*, Kirby and Spence's *Introduction*, and Westwood's *Introduction to the Modern Classification of Insects*. Extensive mention is then made of the systematic papers of European and American authors.

In 1863, the *Boston Journal of Natural History* (vol. 71, pp. 590-603) printed his article "On synthetic types in insects." While studying the hepialids and their position in relation to the main body of the family of Bombyces, he was impressed by the great resemblance of the genus *Gorgopis* Hüb., to the neuropterous genus *Polystaechotes*. He made a detailed comparison, which he gave in his paper, and cites the close resemblance of many small phryganeids to the small moths with long antennae, causing the Lepidoptera to be placed, by some writers, close to the Neuroptera, although in fact these groups are widely separated. He endeavors to show that similar synthesis among insects has its seat in the Neuroptera. The entire paper deals with the analogues of various orders in comparison with

those in the Neuroptera.

In 1864, his "Synopsis of the Bombycidae of the United States" appeared in the *Proceedings of the Entomological Society of Philadelphia* (vol. 3, pp. 97-130; 331-396). This was a revision based on specimens from the New England states, Middle Atlantic states, and a few from California and the British provinces. A long paper on "The bumble-bees of New England and their parasites, with notices of a new species of *Anthophorabia* and a new genus of Proctotrupidae," by Packard, was published in 1864 in the *Proceedings of the Essex Institute* (vol. 4, pp. 107-140). All species of bumble bees known to inhabit New England were described, together with descriptions of some of their parasites, and with notes on the habits of larvae, adults, etc.

Packard's papers in 1865 numbered only two, one on ichneumon parasites of *Samia columbia*, published by the Boston Society of Natural History in its *Proceedings* (vol. 9, pp. 345-346), and the other on an egg parasite of the American tent-caterpillar, printed in the *Practical Entomologist* (vol. 1, pp. 14-15).

An examination of the remaining titles in Packard's bibliography of five hundred and seventy-nine papers shows the extent and variety of his researches. These papers deal with the larger evolutionary processes, with classification, with descriptions of new species, with the economic application of his studies, and with the popularization of natural science. He described as new more than fifty genera and about five hundred and eighty species of animals. More than forty of these genera were in the Lepidoptera. Most of his new species were lepidopterous also. His *Guide to the Study of Insects*, a book of over seven hundred pages with numerous illustrations, appeared in 1869, and summarizing as it did the whole field of entomology as then understood, it went through eight editions, the last appearing in 1884.

Alpheus Spring Packard was born at Brunswick, Maine, February 18, 1839. For many years his father was one of the faculty of Bowdoin College, which Packard entered at the age of eighteen, coming under the influence of Dr. Paul A. Chadbourne, who encouraged his interest in zoology. While a student, Packard joined the Williams College expedition of 1860 to Greenland and Labrador, going, however, only as far as Labrador, where he remained two months, collecting, returning to college in time for the senior year. After graduating in 1861, he became the entomologist to the newly organized scientific survey of Maine, and in this position traveled over a large part of the wild northern section of that state. Next, after deciding to devote himself to zoology, he went to Cambridge, where he became a pupil of Agassiz, devoting himself to the study of entomology for three years. During part of the time he was an assistant to Agassiz. While he was studying zoology, he was reading medicine and attending lectures at the medical college, and in 1864 he received the degree M.D. Another trip was taken to Labrador in the summer of 1864, for the purpose of writing a memoir on the geology and natural history of the region. Upon his return and before writing up the results of the trip, he enlisted in the First Regiment of Maine Veteran Volunteers, as assistant surgeon, and soon he was on his way to join the Army of the Potomac. In July, 1865, he was mustered out after a military and medical experience lasting ten months. He then returned to Boston and acted for a year as librarian and custodian of the Boston Society of Natural History. In 1867, he was appointed one of the curators of the Peabody Academy of Science at Salem, Massachusetts, and for two years was the director of its museum. He founded a summer school of biology, lectured on economic entomology at the Maine State Agricultural College and at the Massachusetts Agricultural College at Amherst, and lectured on entomology and comparative anatomy at Bowdoin College. Numerous other activities entered his life, including his marriage, trips to Europe, his varied work and positions, including his election to Professor of Zoology and Geology at Brown University, where for twenty-seven years he found ample opportunities for teaching and research and where his intellectual abilities developed and matured.

A comprehensive account of the life and work of Packard was written by T. D. A. Cockerell and published by the National Academy of Sciences in 1920.

Packard wrote many important entomological monographs of which, to general entomologists, his *Monograph of the Bombycine Moths of America, North of Mexico* is perhaps the best known. One of his last books was on *Lamarck, the Founder of Evolution; his Life and Work*, Packard being an ardent evolutionist of the Neo-Lamarckian school, which he and Cope and Hyatt founded. Doctor Packard died at Providence, Rhode Island, February 14, 1905, but his influence continues in the scientific life of this country.

VARIOUS ENTOMOLOGICAL CONTRIBUTIONS

Various amateur entomologists contributed to the literature at this time, not extensively, but an occasional paper. In Brooklyn, New York, there appeared in 1862 a report on "The measure worm (*Ennomos subsignaria*); a description of the insect in all metamorphosis, history and progress, and a systematic plan for its final extermination, together with remarks on the state of the shade trees, in the city of Brooklyn, N.Y." This report, prepared by H. A. Graef and Edward Wiebe, was submitted to a large committee appointed by the Brooklyn Horticultural Society, and the committee ordered its publication.

The insect in question had been injuring Brooklyn shade trees for a number of years, and its depredations had been increasing. In 1860, a resolution of the Common Council was passed "to free the city from the perpetually increasing measure worm nuisance," even by "removing from our streets all trees infested by this insect." The report covered the life history, habits, etc., of the insect, a list of shade trees, the extent to which they were defoliated or in danger of injury, a list of immune trees, etc. The authors' plan of control, based on a mapping of the area, involved the systematic scraping of all egg masses from all trees. This was to be done during the winter. During the last half of April, tar rings, four inches wide, were to be applied to trunks and large branches. Such caterpillars as were found beyond the tar bands were to be removed with the foliage by means of hedge shears. Any caterpillars escaping these operations were to be syringed with a strong tobacco infusion or destroyed by daily repeated beatings or jerkings of the tree and branches with proper tools and machinery. Such caterpillars as resisted all these methods and spun cocoons were to be killed by gathering and destroying the cocoons. If, after all the foregoing had been done, adults appeared, they were to be caught in nets or syringed on the trees, like the caterpillars. Such uninterrupted warfare, carried on with energy, must as a matter of course, so the authors stated, reduce very considerably the infestation in a short time. In addition, the cooperation of wrens was to be enlisted, by the erection of cheap, useful, simple and lasting wren houses in the city streets.

In the preparation of their report, the authors consulted entomologists and other scientific and learned "gents." It was received flatteringly by almost everybody. There was, however, one exception. Doctor Trimble, of Newark, a member of the original Committee on Shade Trees, dissented. He said that it was useless to spend a single dollar, because a little fly was destined to do the controlling. The authors would not have mentioned this at all, only Doctor Trimble published his adverse opinion in the *Newark Weekly Mercury* of October 14 and sent, or caused to be sent, copies of this paper to most of the members of the Committee on Shade Trees in Brooklyn. The authors claimed that the insect had been getting worse over a period of twenty-five years and they did not believe that a parasite, all at once, would be able to combat an enemy so strong. As practical men, they preferred to rely on their own exertions, refusing any help from "a fanciful agency."

Mr. H. A. Graef came from Aix-la-Chapelle, Germany, in 1848, with his family and settled in what is now known as Bay Ridge, Brooklyn. Here he established himself as a florist and he was also

interested in natural history and in collecting local plants. His son, Edward L. Graef, previous to his death, was a well-known member of the Brooklyn Entomological Society.

Mr. H. T. Fay, who collected insects in the vicinity of Columbus, Ohio, during the winter months, wrote in 1862 a paper "On winter collecting" that was published in the *Proceedings of the Entomological Society of Philadelphia* (vol. 1, pp. 194-198). Three and a half pages of Coleoptera are listed, many having been found under the loose bark of trees and under moss.

Another collector who started his study of entomology about 1862 was Philip L. Sprague, of Boston, Massachusetts. At first he leaned toward the Lepidoptera and during intervals in his business he interested himself in the biological and technical sides of entomology. Becoming interested in the Coleoptera, he built up a collection. At the time of his death in his native home, Montpelier, Vermont, August 6, 1874, aged forty-five, he had been for some months an assistant and member of the Boston Society of Natural History. His collection went to the museum of that Society. From time to time he contributed to the *Canadian Entomologist* and to the *Proceedings of the Boston Society of Natural History*. He was also a member of the Boston Numismatic Society.

A popular account, "On the value of certain insects" by Wilson Flagg, was published in 1862 in the *Magazine of Horticulture and Botany* (vol. 28, No. 1, Jan., pp. 15-21). Mr. Flagg mentioned the various beneficial activities of insects and quoted DeGeer as saying in an oration before the Academy of Sciences at Stockholm, that

"we shall never be able to guard ourselves against insects but by means of other insects."

Flagg stated that DeGeer had made that statement one hundred years previously and that still the public had not acted upon it. He doubted the value of biological control, but said that he never heard of any experiments to test its practicability. Flagg often quoted Harris in his paper.

Before the July 2, 1862, meeting of the Essex Institute, Salem, Massachusetts (*Proc. Essex Inst.*, vol. 3, pp. 193-200), Mr. Carleton A. Shurtleff, of Brookline, Massachusetts, read a "Report on the armyworm, *Leucania unipuncta* Haw.," containing a general account of its habits, food plants, remedies, etc., including the observations on previous Massachusetts outbreaks, which Fitch had previously recorded in the *Boston Cultivator*, and the views of Walsh, Kirkpatrick, and others.

In the library of the Boston Society of Natural History, there is a blue-covered notebook with Mr. Shurtleff's name on the outside. Eleven pages are occupied by technical descriptions of caterpillars, each description being numbered, such as "White Mtn. grass caterpillar No. 1." There is no date on the manuscript, but one record refers to a "*Biston quernarius* larva taken last year," as transforming to an adult on April 28, 1864.

J. D. Dana in 1864 wrote "On fossil insects from the Carboniferous formation in Illinois" (*Amer. Jour. Sci. & Arts*, vol. 87, No. 109, art. 3, pp. 34-35). He described *Miamia bronsoni*, a neuropteran, and proposed the new genus *Hemeristia*, for the species *Hemeristia occidentalis*.

A physician, Dr. C. C. Helmuth wrote on "New species of Mordellidae collected in Illinois" in 1864, for of the *Proceedings of the Academy Natural Sciences of Philadelphia* (vol. 16, p. 105, 1864; vol. 17, p. 96, 1865). His descriptions averaged only from three to four lines in length. They were very short. In one paper in which he described four species, one in the genus *Mordella* and three in *Mordellestena*, two species are still recognized and two are in synonymy, according to the *Leng Catalogue*.

Another physician, Dr. Emil Brendel, described new species of Pselaphidae for the *Proceedings of the Entomological Society of Philadelphia* 1865 (vol. 5, pp. 28-32; pp. 255-260).

Once in a while, papers by foreign entomologists appeared in

American journals, but such occasions were rare. In 1864, a communication to William H. Edwards from H. W. Bates, of London, England, was printed in the *Proceedings of the Entomological Society of Philadelphia* (vol. 4, pp. 204-207). The subject was "Notes upon the variation of the sexes in *Argynnis diana*." Previously, or in 1863, Mr. H. T. Stainton, distinguished English entomologist, contributed to the *Proceedings of the Philadelphia Society* (vol. 2, pp. 130-132) a paper on "Observations on American Tineina."

JAMES RIDINGS (1803-1880)

James Ridings, one of the three founders of the Entomological Society of Philadelphia, is credited with the authorship of a paper entitled "Description of a supposed new species of Aegeridae from Virginia, and observations upon *Papilio daunus* Boisd.," in the *Proceedings of the Entomological Society of Philadelphia* (vol. 1, pp. 277-278), although it has been stated that he never published. Mr. Ridings was born in England in 1803 and came to Philadelphia in 1830. In 1864, he was collecting insects in Colorado and Kansas, in 1865, in Georgia. Other of his specimens came from the Shenandoah Valley, Virginia. In 1859, for one year, he was vice-president of the newly organized Society, and from 1875 to 1878, its curator. He died July 29, 1880. His daughter, Mary Ann Ridings, married Ezra T. Cresson on March 2, 1859, and his son, James H. Ridings, who was also interested in entomology, was recording secretary of the American Entomological Society for twenty-four years (September 1873 to December 1897).

SIMON SNYDER RATHVON (1812-1891)

Another Pennsylvania entomologist (previously noted) who was active before 1865, was Dr. S. S. Rathvon. To the United States Commissioner of Patents, *Agricultural Reports for 1861 and 1862*, he contributed two popular entomological papers. The first, which appeared in the 1861 report (pp. 585-620) under the title "Entomology and its relations to the vegetable productions of the soil with reference to both destructive and beneficial insects," was a general account of insects, their transformations, etc. Most of the paper dealt with various coleopterous families, notes on the habits of both injurious and beneficial species, life histories, etc., all generously illustrated by woodcuts, some very small and inadequate. His second paper (1862, pp. 372-390) was a continuation under the same title.

JOSEPH LEIDY (1823-1891)

In 1862, the eminent Philadelphia physician and naturalist, Dr. Joseph Leidy, to whom reference has been made previously and to whom we are indebted for the discovery of the existence of a bacterial flora in the intestines, made a "Report to the councils of Philadelphia on some of the insects injurious to our shade trees." (*Phila.*, 1862, 11 pp.). Doctor Leidy had been invited by the Councils of the City to advise them about the insects injurious to the city shade trees, and in his report he first mentioned the trees that he thought should be planted more extensively, naming among them the sugar maple, red maple, sycamore, horse chestnut, American linden, and silver poplar. He said that the silver maple was used too much to the exclusion of other trees. He believed that the Ailanthus, in spite of its odor during its flowering season, was an important shade tree on account of its comparative freedom from disease.

Birds are cited as important in keeping down undue increases of insects. As a general measure against insects, Leidy believed that there should be occasional examinations of the trees, that the trunks and larger branches should be swept with a stiff brush to remove eggs, cocoons, and insects, that ground debris be destroyed, and that there be introduced into the public squares of the city "a few turkeys, guinea fowls, and chickens which destroy all insects that come within their reach." His list of destructive insects at the time included the canker-worm, "the scale bug" "the tufted caterpillar," "the sack bearer" and "the borer." Brief life histories, notes on habits, and recommen-

dations for control are outlined. Against the canker-worm, he advised an infusion of tobacco stems, or a solution of whale oil soap "squirited" on the trees in May while the worms were small. In addition, the tree could be shaken after the application of a tar collar or an oil-trough to the trunk. Against the "scale bug" (*Coccus aceris*), the use of a stiff brush, attached to a pole, was advised. The "tufted caterpillar," or larva of the tussock moth, was to be controlled by scraping cocoons and egg masses from tree trunks and neighboring fences. "Sack bearers", or bag worms, were to be removed and destroyed in the spring while the trees were being trimmed, and as for the "borer" in maples, a species of *Aegeria* [now *Synanthedon*], this was not injurious enough to require special attention.

JOSEPH ALBERT LINTNER (1822-1898)

Although nearly all of Dr. Joseph Albert Lintner's contributions to entomology took place after 1865, a few were published previous to that year, and for this reason it is desirable to include some mention of him. His first paper appeared in the *Proceedings of the Entomological Society of Philadelphia* (vol. 1, pp. 286-293) and was entitled "Metamorphoses of *Ceratomia quadricornis* Harris." In this, Lintner described the transformations of this sphinx moth from egg to adult and outlined its life history. In the same journal later (vol. 3, pp. 50-64) appeared his "Notes on some of the diurnal Lepidoptera of the State of New York, with descriptions of their larvae and chrysalides." Lintner, for some time, had been making a collection of the insects of Schoharie, in eastern New York, and in this paper he utilized part of his notes; information on the first appearance in the spring, etc., is included. In the same volume (vol. 3, pp. 645-672), another of Lintner's papers was published, this being "Notes on some Sphingidae of the state of New York, with descriptions of their larvae and pupae."

Joseph Albert Lintner was born in Schoharie, New York, February 8, 1822, his forefathers having been among the earliest German settlers of the area near the Mohawk River. Lintner graduated from the Schoharie Academy in 1837 and then went to work for a mercantile firm in New York. However, his tastes were along literary and scientific lines, and he spent much time at the lectures and classes of the Mercantile Library Association. In 1848, he returned to Schoharie, and although he continued in business he began the study of entomology. Having married the daughter of a Utica man in 1856, he moved to that city in 1860, engaging in the manufacture of woolen goods until 1867. The following year he moved to Albany because he had been appointed zoological assistant in the New York State Museum of Natural History. For twelve years he held that position and wrote many papers on entomology that were printed in the annual reports of the Museum and elsewhere.

In the meantime, the importance of economic entomology had been recognized in New York. In 1854, the first state appropriation for the study of crop pests was made to the State Agricultural Society, and Dr. Asa Fitch was appointed entomologist to the society. Doctor Fitch died in 1879, after almost twenty-five years of service, and in 1880 legislation was enacted providing for a state entomologist and Lintner was appointed to the office by Governor Cornell. Lintner's voluminous and able reports on economic entomology are well known to entomologists. He was at one time president of the American Association of Economic Entomologists and was identified with many scientific societies in this country and abroad. When the State Museum of Natural History was reorganized in 1883, Lintner was made one of its scientific staff, and in 1884 the University of the State of New York made him a Ph.D. Doctor Lintner died in Rome, Italy, on May 5, 1898, and economic entomology then lost one of its oldest, ablest and most distinguished devotees. He was quiet, dignified, of great intellectual vigor, and his office was his laboratory, museum, library and insectary. Nearly all of his numerous contributions to economic entomology were published after 1865 (see Felt, E. P., *Bull. N. Y. St. Mus. Nat. Hist.*, vol. 5, No. 24, Oct. 1899).

AUGUSTUS RADCLIFFE GROTE (1841-1903)

One of the great students of American Lepidoptera began his publishing career at this time (1861 and 1862) by his contributions to the Academy of Natural Sciences of Philadelphia and to the *Proceedings of the Entomological Society of Philadelphia*. This was Professor Augustus Radcliffe Grote, and of his numerous papers in American and European entomological journals, about twenty-five appeared in the *Proceedings of the Entomological Society of Philadelphia* up to and including 1865.

Professor Grote was born February 7, 1841, in Aigburt, near Liverpool, England. He came to America as a child, and his very early years were lived in New York City. His scientific work began about 1861 or 1862. At one time he was curator for the Buffalo Society of Natural History and the first three volumes of the *Bulletin* of that Society (1873-1877) contain twenty-seven of his papers, mostly on American Lepidoptera, moths especially. About 1882 he left Buffalo for New Brighton, Staten Island, New York, where he lived until he went abroad in 1884. In July, 1879, he edited the *North American Entomologist*, published by Reinecke, Zesch and Baltz in Buffalo, New York. Only one volume of twelve numbers appeared.

Grote described over one thousand species of Lepidoptera, and his descriptive work has been characterized as good. He was especially active in the family Noctuidae. In 1884, he went to Bremen and in 1895 to Hildesheim Germany, and became director of the Roman Museum, having long been a student of ancient Roman matters. He died at Hildesheim, September 12, 1903. With the exception of about twenty years, nearly all his life was spent in the United States, where he devoted himself almost exclusively to the study of North American Lepidoptera. In one of his early papers, Grote wrote,

"In case any of my species should prove to be synonymous, I will cheerfully acknowledge them as such and give priority to the rightful author."

FREDERICK WARD PUTNAM (1839-1915)

Frederick Ward Putnam, who started his scientific career by joining the Essex Institute at the age of sixteen and who wrote on fishes, birds, reptiles and archaeological subjects, also gave some attention to insects. On October 22, 1863, he communicated to the Essex Institute two papers on bees. One was entitled "Notes on the habits of some species of bumble bees" (*Proc. Essex Inst.*, vol. 4, pp. 98-104) and consisted of notes on the nests and habits of *Bombus fervidus* Fabr., *B. vagans* Smith, *B. ternarius*, *B. separatus*, *B. virginicus*, and *B. pennsylvanicus*. The other, called "Notes on the leaf-cutting bee" (*Proc. Essex Inst.*, vol. 4, pp. 105-107), contained the results of his observations at Bridport, Vermont, on the habits of *Megachile*.

Putnam was born in Salem, Massachusetts, April 16, 1839. At the age of seventeen, one year after joining the Essex Institute, he was made curator of ornithology and keeper of the cabinet. In 1856, he entered Lawrence Scientific School and studied under Agassiz, who, within a few months, made him an assistant at the Museum of Comparative Zoology in special charge of the collection of fishes, and Putnam remained in this capacity until 1864, when he married and moved to Salem, where he took charge of the museum of the Essex Institute. At one time he was curator of the Peabody Museum of American Archaeology and Ethnology at Cambridge, and permanent secretary of the American Association for the Advancement of Science. He took an active part in the Essex Institute for many years and held many important offices.

Insects were frequently discussed at the meetings of the Essex Institute. On November 23, 1863, Mr. H. L., Ordway read a paper "On the canker-worm," (*Proc. Essex Inst.*, vol. 3, pp. 291-294), which dealt with its life history. He said that only recently had anything been written on this insect that was helpful to fruit growers. At this meeting, Mr. Putnam stated that there were at least three species of canker-worms, two belonging to the genus *Anisopterix*,

and alike in habits and general appearance, and one the larva of which was yellow. He mentioned also several beetle and wasp enemies of the canker-worm. Then Mr. C. C. Beaman, Mr. Ordway, J. M. Ives and Mr. Putnam discussed the distribution of the pest and concluded that Massachusetts was nearly the northern limit.

THOMAS HENRY KEMBLE OLIVER (1800-1885)

General [Thomas] Henry Kemble Oliver, Dartmouth and Harvard graduate, musician of note, one-time manager of the Atlantic Cotton Mills at Lawrence, Massachusetts, and mayor of that city, treasurer of Massachusetts for five terms, civic innovator, one-time mayor of Salem, etc., delivered on June 10, 1863, an address "On the natural history of the bee," the occasion being a meeting of the Essex Institute at the Town Hall. Among other statements, General Oliver told some interesting things about bees, including one that the late Rev. Dr. Flint of Salem had told him. Relative to the workers driving the drones out of the hive during the early fall, Doctor Flint said that one day he was watching that operation in his own hive, and assisting the bees by killing the drones as they were brought out by means of a needle in the end of a stick. After awhile, the bees, instead of worrying about the drone as they did before he assisted them, "simply remained holding on to the drone and waited patiently for him to finish the operation," going back for another when he had killed the last.

SIDNEY IRVING SMITH (1843-1926)

When Sidney Irving Smith, of Norway, Maine, was twenty years old, he published in 1863, in the *Proceedings of the Boston Society of Natural History* (vol. 9, pp. 342-345), a paper entitled "Description of a species of *Samia* supposed to be new, from Norway, Maine." Mr. A. E. Verrill read the paper for Smith, who had collected a pair of moths closely allied to *Samia cecropia* Hüb. As he could not refer them to any described species, he described the species, with the approbation of Mr. Packard, as *Samia columbia*.

Two years later, in 1865, Mr. Smith published a paper in the *Proceedings of the Portland Society of Natural History* (vol. 1, pp. 143-151), "On the Orthoptera of the state of Maine," in which he enumerated every species of which he had taken specimens in Maine, or which had been mentioned in the literature up to that time. He mentions the small amount of attention which the Orthoptera was receiving from collectors and entomologists and the absence of exact locality information. Smith's list which includes the description of a new species, *Pezotettix manca*, mentions about forty species in the families Forficulidae, Blattidae, Gryllidae, Locustidae, and Acrydidae [sic], the largest number being in the last-named family.

Mr. Smith was born in Norway, Maine, February 18, 1843. He graduated from the Sheffield Scientific School of Yale in 1867 and was then made assistant in zoology and finally professor of comparative anatomy. He had charge of the deep water dredging that was carried on in Lake Superior by the United States Lake Survey in 1871 and by the United States Coast Survey in the region of St. George's Banks in 1872. Smith was also associated in the biological work of the United States Fish Commission on the New England coast. His papers were published in the *Reports of the United States Fish Commission* and in other scientific and government publications. At one time Mr. Smith was the state entomologist of Maine and Connecticut. He died of cancer of the throat May 6, 1926, at New Haven, Connecticut.

WILLIAM SHARSWOOD

In June, 1858, William Sharswood wrote in Philadelphia, Pennsylvania, "Bibliographica librorum Entomologicorum in America boreali editorum," which was published in *Linnaea Entomologica*, Leipzig, Germany (vol. 13, pp. 333-353, 1859, and vol. 14, pp. 256-264, 1860). In this work he enumerated the names and works of the principal North American entomologists. In both parts, the second of

which includes corrections to the first and additional titles, two hundred and sixty-six papers are listed, by forty-five entomologists. The important American contributors to entomology up to that time were of course, T. W. Harris, Asa Fitch, S. S. Haldeman, Thomas Say, and John L. LeConte. However, the contributions of others, even though not numerous, were important. C. A. Dohrni, president of the Entomological Society of Sedina, encouraged Sharswood in the preparation of the bibliography, which it was hoped would be useful to European entomologists. In addition, Sharswood was indebted to Agassiz's bibliography and to John L. LeConte and S. S. Haldeman, his "beloved friends."

CHARLES ALFRED BLAKE (1834-1903)

In 1863, Charles Alfred Blake started in as a contributor to entomological journals by the publication of a "Description of a supposed new genus and species of Saturniidae from the Rocky Mountains" in the *Proceedings of the Entomological Society of Philadelphia* (vol. 2, p. 279). This was followed by a "Description of a new species of Cuban Lepidoptera," in 1865, in the same journal (vol. 4, pp. 313-314). Mr. Blake collected in all orders, but was interested particularly in the Hymenoptera and Lepidoptera. After 1865 he published other papers, short articles and notes, including a synopsis of the family Mutillidae, for which he is chiefly remembered.

Mr. Blake, was born at Brighton, England, July 23, 1834, and came to America in 1849. He was educated in the English Naval School at Greenwich. For more than forty years he was in the surgical and dental instrument business, and this led him to make entomological forceps, The Blake pinning forceps was well known for many years. He joined the American Entomological Society on October 22, 1860, and was an active member and supporter of the organization. For many nights, Mr. E. T. Cresson and Mr. C. A. Blake toiled over the printing of the proceedings and transactions of the society. They worked together. Mr. Cresson rolled on the ink and Mr. Blake, being stronger, pulled the press. C. A. Blake died June 24, 1903, and his collection came into the possession of the American Entomological Society.

HOMER FRANKLIN BASSETT (1826-1902)

About 1862, Homer Franklin Bassett began to study entomology, confining himself almost entirely to the gall producing insects of the Hymenoptera. His first papers appeared in 1863 and 1864, in the *Proceedings of the Entomological Society of Philadelphia* (vol. 2, pp. 323-333; vol. 3, pp. 679-691) and were concerned almost entirely with descriptions of new species of *Cynips*. Many additional new species were later discovered by him and described.

Bassett was born in Florida, Massachusetts, September 2, 1826. When he was ten years old, his family moved to Rockport, Ohio, where he worked on the farm until he was twenty. For a while he attended classes at Berea (Ohio) University and at Oberlin College, but overwork forced him to discontinue. From 1850 to 1853, he spent his winters teaching school in Ohio and Connecticut. Part of 1858 was spent in Kansas, but in the spring of 1859 he opened a private school in Waterbury, Connecticut, on the second floor of a building. After continuing for eight years, ill health forced him to abandon this activity, and in 1871 he started an insurance agency and real estate business. In 1872, he was appointed librarian of Bronson Library, and he held this position until March 1, 1901, when the infirmities of age and ill health caused him to resign. He died in Waterbury, Connecticut, June 28, 1902. His collection went to the American Entomological Society of which he was a corresponding member. In 1894, Yale conferred on him the degree M.A.

JOHN WILLIAM WEIDEMEYER (1819-?)

Some of our early entomologists were quite versatile, in fact, much more so than many present-day ones. For instance, John William

Weidemeyer, who published a "Catalogue of North American Butterflies" in 1863 (*Proc. Ent. Soc. Phila.*, vol. 2, pp. 143-154; pp. 513-542), was an author and playwright. His catalogue included all the described species of diurnal Lepidoptera known at that time to occur in North America from the Isthmus of Panama to the Arctic regions. Weidemeyer followed the classification of Doubleday and Westwood in their *Genera of Diurnal Lepidoptera*.

Weidemeyer was born in Fredericksburg, Virginia, April 26, 1819, his father having been a soldier in the life guards of Jerome Bonaparte, King of Westphalia. He was educated at the Columbia College grammar school. For a time he taught school in Ohio. Then he entered business in New York and made a large collection of butterflies, which was sold to the museum in Ratisbon, Germany. He wrote a number of articles for the *Christian Inquirer* and the *Atlantic Monthly*. His play entitled "The Vagabonds," written in 1841, was produced in New York City and in Philadelphia. He was the author of other works such as *Real and Ideal* (1865), *Themes and Translations* (1867), *American Fish*, and *How to Catch Them* (1885), and *From Alpha to Omega* (1889).

TRYON REAKIRT (1844-?)

Tryon Reakirt, of whom biographical information appears to be scarce, wrote eight papers between 1863 and 1865. These were devoted to the Lepidoptera of North America, Central America, Philippine Islands, descriptions of new species, notes, etc. These all appeared in the *Proceedings of the Entomological Society of Philadelphia* (vols. 2-5). Essig has stated that Reakirt collected butterflies throughout California, especially in the vicinities of Los Angeles and Sacramento, and in the Rocky Mountains.

ALEXANDER WINCHELL (1824-1891)

Professor Alexander Winchell, who has been called the first simplifier of science in America and whose reputation rests upon his ability as a teacher and upon his numerous geological papers, once wrote "On the currant worm of Ann Arbor Michigan" (*Amer. Jour. Sci. & Arts*, vol. 38, pp. 291-292, 1864). The account in the *American Journal of Science* was condensed from an article in the *Detroit Free Press* of July 9, 1864, and treated of "*Selandria ribis*," named by Winchell who had observed its habits and appearance the previous summer. He also investigated the cherry slug and wrote "Notes on *Selandria cerasi* Harris as it occurs at Ann Arbor, Mich." for the *Proceedings of the Boston Society of Natural History* (1865).

Alexander Winchell was born in Northeast, Dutchess Co., New York, December 31, 1824, and died in Ann Arbor, Michigan, February 19, 1891. He was industrious and versatile, so the standard accounts state, and on his seventh birthday recited the entire multiplication table without error. He held various teaching positions in New York, New Jersey, Alabama and Michigan. He was an entertaining lecturer on scientific subjects, especially geology and evolution, and he wrote various books on the results of his investigations. His educational work, it is said, widened the avenues of natural science and resulted in its introduction into secondary schools.

RICHARD COLVIN

The Federal Government, by its publication of articles on bees, continued to try to develop beekeeping in the United States. Richard Colvin, of Baltimore, Maryland, was the author of "The Italian honey-bee; or the culture and Italianization of the native or black honeybee," which appeared in the *U. S. Commissioner of Patents Agricultural Report for 1863* (pp. 530-546). His article dealt with the introduction of the Italian honey bee into the United States about 1855 by Messrs. Samuel Wagner and Edward Jessop, of York, Pennsylvania. At least these men made the first attempt even though the bees perished before their arrival. Other historical details were given, followed by a long discourse on the habits and characteristics of workers, descriptions of adult Italian workers, drones, breeding,

rearing, profits, etc. In addition, the differences between the Italian and our "native" black bees were gone into.

HENRY SHIMER (1828-1895)

Dr. Henry Shimer, known and respected in his community as a physician, scholar, scientist and distinguished citizen, commenced his entomological publishing activities in 1865. In that year he wrote a description of *Chrysops illinoiensis* that appeared in the *Proceedings of the Entomological Society of Philadelphia* (vol. 4, pp. 208-212) entitled "Description of the imago and larva of a new species of *Chrysops*." Later he described a new species of *Aleyrodes*, a new species of *Cecidomyia*, a new genus of Aphidae, several species of acarids and wrote upon the white pine louse and hickory gall insects, all of which were published in the *Proceedings of the Entomological Society of Philadelphia*.

Doctor Shimer was born September 1, 1828, in West Vincent, Chester Co., Pennsylvania. He received his M.A. from the University of Chicago and was identified with the work of the Smithsonian Institution and the scientific societies of New York and Philadelphia. He was extremely interested in educational affairs, and for a time he was the assistant state entomologist of Illinois.

BURT GREEN WILDER (1841-1925)

An interesting paper, "On the *Nephila plumipes*, or silk spider," was written by Burt G. Wilder and published in the *Proceedings of the American Academy of Arts and Science* in 1865 (vol. 7, pp. 52-57). Mr. Wilder's observations were made at the north end of Folly Island, south of the harbor of Charleston, South Carolina, on August 20, 1863. From a number of spiders, he wound 3,480 yards of silk upon the periphery and over the sides of a hard rubber ring. From the body of one spider, he reeled off silk for one and a quarter hours, at the rate of six feet per minute, making one hundred and fifty yards of beautiful shining golden silk. He describes the spider, saying he had found it only upon Long Island, Folly Island, and James Island. The habits of the adult and young are mentioned, and according to Wilder, the most remarkable thing about it was that it could be "fed and watered by hand." He fed it live flies and chicken liver and drops of water on a camel's hair brush.

Burt Green Wilder was born in Boston, Massachusetts, August 11, 1841. At the age of eighteen, he entered the Lawrence Scientific School at Harvard and studied comparative anatomy under Jeffries Wyman. He joined the Boston Society of Natural History and was president of the Agassiz Zoological Club. When only nineteen, he gave in 1860 a few public lectures on Du Chaillu's African collections. In 1862, he received his B.S. degree in anatomy and entered the Judiciary Square hospital in Washington, D. C., as a medical cadet. He became licentiate of the Massachusetts Medical Society in 1863, was appointed assistant surgeon of the 55th Massachusetts volunteer infantry, was promoted surgeon, and served in the regiment until its discharge in September, 1865. He received his M.D. degree from Harvard in 1866, and became an assistant to Professor Agassiz. During the winter of 1867-68 he gave a course of lectures at the University. In 1867, he was appointed professor of zoology in Cornell University. From 1874 to 1884, he was professor of physiology in the Medical School of Maine, and during the winter of 1876-77, he lectured at the University of Michigan. His writings embrace nearly one hundred and twenty technical papers, fifty reviews, and a like number of articles in various magazines.

THE PRACTICAL ENTOMOLOGIST (1865-1867)

In 1865, the Entomological Society of Philadelphia entered the economic field by the publication of a monthly bulletin entitled *The Practical Entomologist* — "for gratuitous distribution among Farmers and Agriculturists." In volume 1, number 1, dated October 30, 1865, it is hoped that the undertaking will be supported both by scientists and agriculturists, and it is stated that the "enquiring agriculturist"

must not expect to find in its pages any particular brew recommended for insect control. Attention is called to the quack remedies mentioned in agricultural journals and to the need for knowing the life history of the insects to be controlled. In the first issue, Benjamin D. Walsh has an article on "The New Potato-bug and its Natural History." In addition, there is a note on "The Black Onionfly" signed "Eds" and "The Tomato-Worm Story," unsigned.

The Practical Entomologist was sent regularly to those who sent twelve cents in stamps, for postage, to E. T. Cresson, Corresponding Secretary, 518 South 13th Street, Philadelphia. Eleven advertisements appeared in the first issue, representing such businesses as florist, nurseryman, printing, building, carpentry and heating. In this issue, James Ridings, 1311 South Street, Philadelphia, advertises himself as a dealer in insects. A special notice in this issue calls attention to a fund of \$50,000 necessary for the welfare of the Entomological Society of Philadelphia. Donations are solicited and mention is made of the donation of \$10,000 by the late Dr. Thomas B. Wilson. Contributing memberships at \$1.00 each and honorary memberships at \$100.00 each are also solicited. In addition to what has been mentioned, the first issue contains notes on various economic insects such as a scale on sugar maple, *Clisocampa americana*, *Datana ministra*, *Hyphantria textor*, rose-bugs, etc., signed by John A. Warder, Cincinnati, Ohio.

In the second number, November 27, 1865, there is an article on "Insects and the Cholera," one on the jointworm in which chalcids flies are recorded as parasites, another entitled "A few Remarks on Silk-producing Lepidoptera" by A. R. Grote, and still another, "Notice of an egg-parasite upon the American Tent Caterpillar" by A. S. Packard, Jr., M.D. A plea for more advertisers is made and Walsh states that he needs specimens of the joint-worm and that it is disgraceful that an insect which has destroyed millions of dollars' worth of crops should be imperfectly known.

In the third issue, December 25, 1865, the publication committee and editors are named as E. T. Cresson, Aug. R. Grote and J. W. McAllister. Benjamin D. Walsh of Rock Island, Illinois, is named as associate editor. According to this issue, the demand for copies was immense and the receipts from advertising were not enough to defray publication costs. Prompt publication was not possible and smaller type had to be used to give as much reading matter as possible. This issue included an article on the onion fly by the editor; one on the white pine weevil by H. F. Bassett, Waterbury, Connecticut; one on the thrips of the vine by B. D. Walsh; one on the wooly apple-tree blight by A. E. Verrill, New Haven, Connecticut; and notes on currant and gooseberry insects from Fitch's first report.

Volume 1, Number 4, January 29, 1866, was taken up by a long article on "Borers" by Walsh, apple, peach, locusts, hickory and currant borers. According to volume 1, Number 5, February 26, 1866, the circulation was eight thousand copies. The advertising columns were full and friends were thanked for their help. But in volume 1, Number 6, March 26, 1866, new subscribers are advised that they will have to pay fifty cents because both the circulation and expenses are increasing. In volume 1, Number 9, June 25, 1866, the question is raised as to continuing another year. Since free copies were stopped and the subscription placed at fifty cents, some people seemed to think that the publication committee wanted the money for their own pockets. As a matter of fact, the committee went into their own pockets to the extent of several hundreds of dollars in order to distribute eight thousand copies free. The contributions and advertising helped, but they were not sufficient. This issue said that unless five thousand subscribers at fifty cents each were received, the publication would cease. In the next issue, volume 1, Number 10, July 30, 1866, the same request was made. But in volume 1, Number 12, September 29, 1866, it is stated that although the desired number of subscribers was not received, *The Practical Entomologist* will continue to be published.

B. D. Walsh was a heavy contributor to all issues, and beginning

with volume 2, Number 1, he was the sole editor. And so it continued for another year, ending with volume 21, Numbers 11 and 12, August and September, 1867. In this, the last issue, Walsh takes leave of his readers and thanks various persons who helped him. At this time, he was appointed State Entomologist of Illinois.

ISAAC PIM TRIMBLE (1804-1890)

A Treatise on Insect Enemies of Fruits and Fruit Trees by Isaac P. Trimble (William Wood & Co., New York) appeared in 1865 and was favorably received and reviewed. This was a quarto work of one hundred and forty-nine pages, and eleven plates, devoted mainly to the plum curculio and codling moth, and the account of the plum curculio was the most complete that had appeared up to that time. In the introduction, Doctor Trimble stated that he had studied injurious insects for many years, first for the protection of his own crops and later for knowledge that he had not been able to find in books. In addition, his interest was increased by reading the works of Kirby and Spence, Hübner, Latreille, Say, Harris and Fitch. From observations recorded in his book, he traveled considerably through New Jersey and New York, always on the alert for the plum curculio and codling moth, and extremely interested in birds. He was fully alive to the many useless remedies proposed at that time for the plum curculio and kept a collection of them. He also experimented somewhat with various materials, and some of his results are recorded in his book. He was entomologist of the Horticultural Association of the American Institute and of the State Agricultural Society of New Jersey. To this latter organization the New Jersey legislature had appropriated \$3,000 for the preparation and publication of Doctor Trimble's *Treatise*. Nothing went to the author. The money was used by the society in publishing and purchasing copies of the book for free distribution. Eight dollars was asked for a copy with colored plates and five for one with plain-plates.

Trimble's book was very favorably mentioned in the *Magazine of Horticulture and Botany* (vol. 31, pp. 193-197, 1865) and Walsh in *The Practical Entomologist* (vol. 2, No. 3, Dec. 1866) advised every fruit grower to consult it, being critical only of the insect illustrations by Hochstein. Other species of insects are mentioned in Trimble's work, and it is, in addition, a source of information concerning the relations of birds to some of the worst pests of horticulture. Doctor Trimble made it a practice to examine the stomach contents of a large number of birds.

Doctor Isaac Pim Trimble was born at West Bradford, Chester County, Pennsylvania, on August 20, 1804. He entered the medical school of the University of Pennsylvania in October, 1824, and was graduated, M.D., April 7, 1826. For a time he was connected with the Pennsylvania Hospital for the Insane, where he was associated with Doctor Kirkbride in delivering a course of lectures. He also practiced in Chester County, at the same time giving a large part of his time to fruit culture. About 1840 he left Philadelphia and went to New York, where he married in 1841 Jane Riggs, a daughter of Caleb S. Riggs, an attorney-at-law. He continued his practice as a surgeon in New York until 1846, when he bought a farm on the Hudson and moved there with his family. He remained on the farm for ten years, raising and marketing fruit of a superior quality. In 1856, he moved to Newark, New Jersey, to assume his duties as an officer in the Customs House. He was also registered as a physician, according to the Newark city directories. He was a member of the New Jersey Assembly from Newark for three terms, and in 1866, chairman of the House Committee on Agriculture.

In 1873, Trimble retired from business and professional duties and lived until 1887 almost continually in New York. The last several years of his life were spent at a beautiful country home near Cornwall, New York, where he died September 27, 1890. He was wrapped up in nature, and although his most important entomological contribution was his *Treatise*, he wrote nine other articles on insects which were printed in various journals. He was a keen student and

a close observer.

ANTON HOCHSTEIN (1829-1911)

Anton Hochstein, who did the plates in Trimble's *Treatise*, came to this country about 1849 from Bavaria, with his father, mother, two brothers and a sister. He was born in Bavaria, in 1829. His brothers started a grocery business in Hoboken, New Jersey, about 1860, but Anton was not very active therein. He served in the Civil War and lived in New York City where he was employed in illustrating seedsmen's catalogs. He is supposed to have lived in Hoboken, New Jersey, from about 1869 until his death. In A. R. Grote's "Additions to the catalogue of United States Lepidoptera, No. 4" (*Proc. Ent. Soc. Phila.*, vol. 2. pp. 64-68), Hochstein drew the specimens for its accompanying plate. Hochstein painted in oil and water colors, some of his work depicting rural scenes, flowers, fruits, birds and insects. The Free Public Library of Hoboken, N. J., has some of his work. At one time his paintings were exhibited at Weber's art shop in Hoboken. Anton never married, and his death occurred November 3, 1911, in St. Mary's hospital, Hoboken, New Jersey.

FRANK COWAN (1844-1905)

An interesting and diverting book entitled *Curious Facts in the History of Insects, including Spiders and Scorpions*, was published in 1865 by J. B. Lippincott & Company. Frank Cowan was the author, and his work is a collection of statements ransacked from the writings of Greek, Roman, and later authors, dealing with early beliefs and superstitions about insects. Books of travel, history, poetry and suppletive works yielded their entomology to Cowan's industry. Such historical settings are not scientific facts as we understand them today, or even as they were understood in 1865, and although some are plainly absurd, Cowan made it plain in the preface of his book, that he was dealing principally with the statements of various writers. The arrangement of his material by orders and families of insects has a particular appeal to entomologists and bringing together as it does a mass of insect mythology, it furnishes a sort of historical background for the study of entomology.

Frank Cowan was born in Greensburg, Pennsylvania, December 11, 1844. His father, Edgar Cowan, was United States Senator from Pennsylvania from 1861 to 1867. Frank Cowan studied at Mount Pleasant and Jefferson Colleges, but did not graduate from either. In 1862, he became secretary of the senate committee on patents, of which his father was chairman. During the vacations of Congress, he read law with his father, and was admitted to the bar in 1865. It was during the winter of 1863-64 when, having the use of the Congressional Library, he began at the age of nineteen the compilation of his *History of Insects*. In 1866, he became one of the secretaries of President Johnson. In 1867, he started the study of medicine in the Georgetown Medical College and received his degree in 1869. From 1869 until 1872, he practiced medicine in Greensburg, Pennsylvania, and then became editor and proprietor of an industrial journal known as *Frank Cowan's Paper*, which continued until 1875. In 1878, he was district attorney. From 1880 to 1881, he made a tour of the world, entering Korea in advance of treaties between that and other countries, making an ethnological collection and sending to the United States government information about the exports and imports of Korea. In 1882, he resumed the practice of law. In 1884-85, he made a second tour of the world. In 1895-96, he was general superintendent of the Westmoreland Hospital. For some years previous to his death in 1905 he devoted his time to fruit growing and writing. His versatility is shown by his authorship of various pamphlets and magazine articles dealing with medical, historical, anthropological, biographical and evolutionary subjects, by his musical compositions, his poems, by his *History of Insects*, and by various other books that he wrote.

About 1880 he published privately at Greensburg, Pennsylvania, *Revi-Lona, A Romance of Love in a Marvelous Land*, apparently the

last, or one of the last, books he wrote. In this romance, the hero goes to the far South Seas on a whaling voyage and finally ends on an island completely dominated by Amazonian women, where he takes unto himself twenty-five governesses, each on successive joyous nights. Doctor Cowan wrote this book, so he stated,

"for the good and pure old man, to whom the world, the flesh and the devil are no longer foul and forbidden facts in himself and his surroundings, but fair and fascinating fancies in the glamour of the evening of life—or haply, flashing and scintillating in the lightening before death."

I recommend Doctor Cowan's first (1865) and last books to all entomologists. The next year there was an outbreak of grasshoppers in Kansas, but this was in 1866, and so it lies beyond the limits of this account.

ADDITIONS AND CORRECTIONS TO THE *BIBLIOGRAPHY OF BUTTERFLIES*, IN *ATLAS OF NEOTROPICAL LEPIDOPTERA*

No. III. COMPRISING MOSTLY WORKS PUBLISHED IN 1998

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The second set of *Additions and Corrections* to the annotated *Bibliography of Butterflies* (Lamas, Robbins, and Field, 1995) in the series *Atlas of Neotropical Lepidoptera*, Vol. 124, was published a year ago (Lamas, 1998, *Lepidoptera News* 1998(3):34-56). The 219 additional references included herein comprise mostly works published in 1998, such as were recorded until August 15th, 1999.

In the *Corrections* section, rather than repeating whole bibliographic entries, I have used **bold** typeface to indicate corrections made, which I hope will be self explanatory.

Julián Salazar, Angel Vilorio, and Andrew Neild were particularly helpful in providing data on publications omitted previously, and I am most grateful for their kind interest and assistance.

ADDITIONS

Aguilar, Carlos

1996. See Kochalka, J. A. et al., 1996.

Amarillo, Angela

1997. See Fagua, G. et al., 1997.

Alonso, Alfonso, Eneida Montesinos, Eduardo Rendón, Lincoln Pierson Brower and Ken Oyama

1998. Influence of forest canopy closure on rates of bird predation on overwintering Monarch butterflies *Danaus plexippus* L. *Biological Conservation* 85(1/2): 151-159, 1 fig., 2 tabs. (July-August) [Mexico]

Alonso, Alfonso, Eduardo Rendón, Eneida Montesinos and Lincoln Pierson Brower

1997. Use of lipid reserves by Monarch butterflies overwintering in Mexico: Implications for conservation. *Ecological Applications* 7(3): 934-947, 5 figs., 2 tabs. (August) [*Danaus plexippus* (Linnaeus)]

Andrade, Miguel Gonzalo

1997. See Fagua, G. et al., 1997.

1998a. Utilización de las mariposas como bioindicadoras del tipo de hábitat y su biodiversidad en Colombia. *Revista de la Academia colombiana de Ciencias exactas, físicas y naturales* 22(84): 407-421, 13 figs., 1 tab. (September) [general]

1998b. See Fagua, G. et al., 1998.

Anken, Ralf H.

1998a. 1. Beitrag zur Kenntnis der Tagfalterfauna von Poté. Bearbeitung der um des Jahreswechsel 1996/97 in Poté (Minas Gerais, Brasilien) gesammelten Tagfalter. Erster Teil: Lycaenidae und Nymphalidae (ohne Satyrinae) (Lepidoptera: Rhopalocera). *Faceta* 15(1): 18-44, pl. 4, 7 figs. (April) [new subspecies: *Dynamine mylitta thoenii*, *Eunica cuvierii bourrati*]

1998b. Eine neue Art der Gattung *Splendeuphychia* Forster aus dem Minas Gerais Brasiliens (Lepidoptera: Nymphalidae: Satyrinae: Euptychiini). 5. Beitrag zur Kenntnis neuer neotropischer Euptychiini. *Entomologische Zeitschrift* 108(5): 184-192, 4 figs. (14 May) [*S. ava*]

1998c. 2. Beitrag zur Kenntnis der Tagfalterfauna von Poté. Bearbeitung der um den Jahreswechsel 1996/1997 in Poté (Minas Gerais, Brasilien) gesammelten Tagfalter. Zweiter Teil: Pieridae (Lepidoptera: Rhopalocera). *Faceta* 16(2): 19-50, 25 figs. (1 December) [general]

Anken, Ralf H., Thomas Kappel, Ute Jonas, Dirk Bremen and Maria Helena Pinto Bivar de Matos e Silva

1998. Wiederentdeckung von *Tegosa infrequens* Higgins (1981), beschrieben aus dem Bergwald Südost-Brasiliens. (Lepidoptera: Nymphalidae: Melitaeinae: Phycodini Higgins, 1981). *Faceta* 14(1/2): 4-12, 2 figs. (April)

Anken, Ralf H., and Maria Helena Pinto Bivar de Matos e Silva

1998. Zur Kenntnis einer neuen Unterart von *Ortilia ithra* (Kirby

1871) aus dem brasilianischen Mato Grosso-Gebiet (Lepidoptera: Nymphalidae: Melitaeinae: Phycodini). *Entomologische Zeitschrift* 108(3): 122-128, 3 figs. (12 March) [*O. i. luiseana*]

Anonymous

1998. The Butterfly King. *Wildlife Conservation* 101(3): 56-59, figs. (May) [*Danaus plexippus* (Linnaeus); migration; Mexico]

Araya, José

1998. See Monge-Nájera, J. et al., 1998.

Arista, M., P. E. Oliveira, P. E. Gibbs and S. Talavera

1997. Pollination and breeding system of two co-occurring *Hirtella* species (Chrysobalanaceae) in central Brazil. *Botanica Acta* 110(6): 496-502, 3 figs., 4 tabs. (December) [general]

Ariza, Rubén D.

1998. See Duarte, H. W. et al., 1998.

Arnqvist, Göran

1998. Comparative evidence for the evolution of genitalia by sexual selection. *Nature* 393(6687): 784-786, 1 fig., 1 tab. (25 June) [*Eueides*, *Heliconius*]

Atria, Juan

1997. *Orden Lepidoptera (mariposas, polillas)*, pp. 94-103, 172-175, 11 figs. In: Cepeda, J. (Ed.), *Insectos de la Alta Montaña del Valle del Elqui*. La Serena, Universidad de La Serena [general; Chile]

Attal, Stéphane, and Alain Crosson

1997. Papillons néotropicaux nouveaux des genres *Perisama* et *Epiphile* (Lepidoptera Nymphalidae). *Bulletin de la Société entomologique de France* 102(3): 287-291 ([28] August) [*P. lebasii selva*, *P. paralia bonita*, *P. canoma cyaneis*, *P. guerini nimba*, *E. latefasciata obscurior*, *E. oreo distalis*; Ecuador]

Austin, George T.

1997. The Butterflies of Venezuela. Part 1: Nymphalidae I (Limenitidinae, Apaturinae, Charaxinae). A comprehensive guide to the identification of adult Nymphalidae, Papilionidae, and Pieridae. Andrew F. E. Neild. 1996. *Annals of the entomological Society of America* 90(5): 701-702 (September) [general; book review]

1998a. Hesperidae of Rondônia Brazil: *Ridens* and the "proteus" group of *Urbanus*, with descriptions of new species (Pyrginae). *Journal of the Lepidopterists' Society* 52(2): 166-176, 12 figs. (21 July) [*R. bidens*, *U. villus*, *U. longicaudus*, *U. parvus*]

1998b. The correct name of the *Danaus gilippus* (Cramer) (Lepidoptera: Nymphalidae) in the Southwestern United States, pp. 749-750. In: Emmel, T. C. (Ed.), *Systematics of Western North American Butterflies*. Gainesville, Mariposa Press ([18] December) [Mexico, Central America]

1998c. *Limenitis archippus* (Cramer) (Lepidoptera: Nymphalidae) in Western United States with special reference to its biogeography in the Great Basin, pp. 751-761, 8 figs. In: Emmel, T. C. (Ed.), *Systematics of Western North American Butterflies*.

- Gainesville, Mariposa Press ([18] December) [Mexico]
- Austin, George T., and John F. Emmel**
 1998a. *New subspecies of butterflies (Lepidoptera) from Nevada and California*, pp. 501-522, 66 figs. In: Emmel, T. C. (Ed.), *Systematics of Western North American Butterflies*. Gainesville, Mariposa Press ([18] December) [*Thorybes pylades indistinctus*, *Strymon columella clenchi*, *Junonia coenia grisea*; Mexico]
- 1998b. *A review of Papilio multicaudatus Kirby (Lepidoptera: Papilionidae)*, pp. 691-700, 12 figs. In: Emmel, T. C. (Ed.), *Systematics of Western North American Butterflies*. Gainesville, Mariposa Press ([18] December) [new subspecies: *P. m. grandiosus*; Mexico]
- Austin, George T., and Kurt Johnson**
 1998. Theclinae of Rondônia, Brazil: *Olynthus*, with descriptions of new species (Lepidoptera: Lycaenidae). *Tropical Lepidoptera* 9(1): 5-13, 20 figs. ("20" [24] August) [new species: *O. occultus*, *O. ruberangulus*, *O. pressus*, *O. lividus*, *O. fulvoven-tris*, *O. ochraventris*, *O. pallus*, *O. purpuratus*, *O. negrus*, *O. albosignum*]
- Austin, George T., and Olaf Hermann Hendrik Mielke**
 1998. Hesperidae of Rondônia, Brazil: *Aguna Williams* (Pyrginae), with a partial revision and descriptions of new species from Panama, Ecuador, and Brazil. *Revista brasileira de Zoologia* 14(4): 889-965, 83 figs., 1 tab. (30 June) [*A. latifascia*, *A. coeloides*, *A. nicolayi*, *A. latimacula*, *A. penicillata*, *A. spicata*, *A. longicauda*, *A. panama*, *A. spatulata*, *A. similis*, *A. meso-dentata*, *A. squamalba*, *A. parva*]
- Austin, George T., and Michael J. Smith**
 1998a. *Revision of the Thessalia leanira complex (Lepidoptera: Nymphalidae: Melitaeinae): Thessalia leanira (C. & R. Felder), with descriptions of four new subspecies*, pp. 333-358, 67 figs. In: Emmel, T. C. (Ed.), *Systematics of Western North American Butterflies*. Gainesville, Mariposa Press ([18] December) [*T. l. austrima*; Mexico]
- 1998b. *Revision of the Thessalia theona complex (Lepidoptera: Nymphalidae: Melitaeinae)*, pp. 359-396, 223 figs. In: Emmel, T. C. (Ed.), *Systematics of Western North American Butterflies*. Gainesville, Mariposa Press ([18] December) [new subspecies: *T. t. costaricensis*, *T. t. brocki*, *T. t. mullinsi*, *T. t. minimus*; Central America, Colombia, Venezuela]
- Bálint, Zsolt, Kurt Johnson and Karl Ritter Kroenlein**
 1998. New species of Eumaeini (Lycaenidae) from southeastern Brazil. I. Four new species of *Denivia*. *Acta zoologica Academiae Sientiarum hungaricae* 43(3): 257-269, 13 figs. (15 February) [*D. grava*, *D. secunda*, *D. ponsanota*, *D. striata*]
- Barnes, Matthew J. C.**
 1998. If you want to collect in Central America, you better Belize it. *News of the Lepidopterists' Society* 40(4): 75-76, 1 map [general; Belize]
- Barnes, William, and James Halliday McDunnough**
 1916. Notes on North American diurnal Lepidoptera. *Contributions to the natural History of the Lepidoptera of North America* 3(2): 49-152, pls. 4-11 (5 December) [general; Mexico]
- Barone, John A.**
 1998. Host-specificity of folivorous insects in a moist tropical forest. *Journal of animal Ecology* 67(3): 400-409, 3 figs., 4 tabs. (May) [Hesperiidae, Nymphalidae; Panama]
- Beck, B. M.**
 1998. See Woodruff, R. E. et al., 1998.
- Benson, Woodruff W.**
 1998. See Hernández, M. I. M. & W. W. Benson, 1998.
- Berger, Lucien A.**
 1937. Variations et aberrations de lépidoptères. Formes nouvelles de *Colias*. *Lambillionea* 37: 146-147, pl. 9 (25 July) [*C. dimera f. superba*, *C. d. f. alba*; Colombia]
- Bezaury, Juan**
 1992. See Maza, R. G. de la & J. Bezaury, 1992.
- Boggs, Carol L.**
 1998. Salt, sex, and the single butterfly. *American Butterflies* 6(3): 4-9, 5 figs. [general; behavior]
- Boiça, Arlindo Leal, Jr., and José Djair Vendramim**
 1993. Infestação de girassol pela lagarta *Chlosyne lacinia saundersii* em duas épocas de cultivo. *Scientia agricola* 50(2): 244-253, 6 tabs., 2 figs. (June-September) [host plant; Brazil]
- Bollino, Maurizio, and Giovanni Sala**
 1998a. Un nuovo ibrido di *Papilio (Pterourus)* del Perù settentrionale (Lepidoptera Papilionidae). *Lambillionea* 98(1)(1): 46-48, 1 fig. (March)
- 1998b. Description of a new subspecies of *Papilio (Pterourus) zagreus* Doubleday, 1847 from south-eastern Peru with taxonomical notes on the species (Lepidoptera, Papilionidae). *Entomologia africana* 3(1): 19-27, pl. 3, 2 figs. [*P. (P.) z. nigroapicalis*]
- Bremen, Dirk**
 1998. See Anken, R. H. et al., 1998.
- Brévignon, Christian**
 1998a. Un étaloir à papillons. *Alexanor* 20(5): 318-320, 4 figs. (30 June) [Riodinidae; technique]
- 1998b. Notes sur quelques espèces du genre *Parides* Hübner, 1819 en Guyane Française (Lepidoptera Papilionidae). *Lambillionea* 98(3)(2): 435-440, 24 figs. (September) [new subspecies: *P. anchises bukuti*, *P. erithalion inini*, *P. panthous barbotini*]
- Brévignon, Christian, and Jean-Yves Gallard**
 1998a. Inventaires des Riodinidae de Guyane Française. III. Riodini-nae: Riodinini. Description de nouveaux taxa. (Lepidoptera). *Lambillionea* 98(1)(1): 7-24, 42+10 figs. (March) [new taxa: *Chorinea amazon antoniana*, *C. batesii regina*, *Ithomeis satellites bernardi*, *Lepricornis atricolor malmanoury*, *Chamaelimnas briola batado*, *Baeotis hisbon disjuncta*, *B. euprepes obscurior*, *B. prima nigricans*, *B. expleta corentyna*; Guyana]
- 1998b. Inventaire des Riodinidae de Guyane Française. IV - Riodini-nae: Symmachiini, Charitini, Helicopini. Description de nouveaux taxa. (Lepidoptera). *Lambillionea* 98(2)(2): 304-320, 56+8 figs. (June) [new taxa: *Mesene arouany*, *Symmachia leena harveyi*, *S. falcistriga meyi*, *Pirascia devriesi*, *P. sticheli kawensis*, *Sarota miranda*, *S. flavicincta atlantica*]
- 1998c. Inventaire des Riodinidae de Guyane Française. V - Riodini-nae: "Emesini", Lemoniini. Description de nouveaux taxa. (Lepidoptera). *Lambillionea* 98(4)(1): 483-498, 53 figs. (December) [*Argyrogrammana talboti*, *Calydna caieta similis*, *C. venusta stolata*, *C. cabira belemia*, *Pachitone* [sic] *lateritia bourda*, *Lemonias egaensis reducta*, *Juditha majorina*, *Synargis chaonia indivisa*]
- Brower, Andrew Van Zandt**
 1998a. See Sime, K. R. & A. V. Z. Brower, 1998.
- 1998b. *Heliconius* and related genera, by Helmuth and Ruth Holzinger. 1994. *Journal of the Lepidopterists' Society* 52(1): 120-122 (15 June) [general; book review]
- 1998c. A fair book review? A reply to Mr. Willmott. *News of the Lepidopterists' Society* 40(5): 106 (15 December) [general; Venezuela]
- Brower, Andrew Van Zandt, and Robert DeSalle**
 1998. Patterns of mitochondrial versus nuclear DNA sequence divergence among nymphalid butterflies: the utility of *wingless* as a source of characters for phylogenetic inference. *Insect molecular Biology* 7(1): 73-82, 6 figs., 4 tabs. (February) [general]
- Brower, Lincoln Pierson**
 1997. See Alonso, A. et al., 1997.
1998. See Alonso, A. et al., 1998.
- Brown, Frederick Martin**
 1965. Three letters from J. A. B. D. de Boisduval to W. H. Edwards, and the true identity of *Melitaea pola* Bdv. and *Melitaea callina* Bdv. *Journal of the Lepidopterists' Society* 19(4): 197-211, 5 figs. (20 December) [Mexico]
- Brown, Keith Spalding, Jr.**
 1998. See Casagrande, M. M. et al., 1998.
- Buff, Sheila**

1998. *Nature's Window. Butterflies*. Kansas City, Andrews McMeel Publishing. 48 pp., figs. [general]
- Bugatti, Cristina L.**
1998. Flores y frutales que atraen a las esquivas mariposas. *Mariposas del Mundo* (Buenos Aires) 4: 10, 1 fig. (March) [general; Argentina]
- Calvo, Renán**
1998. Reproducción de *Oenomaus ortignus* [sic] (Lepidoptera: Lycaenidae) en Barva, Heredia, Costa Rica. *Revista de Biología tropical* 46(1): 101-104, 1 tab. (April) [life history; host plant]
- Cardoso, Márcio Zikán**
1997. Testing chemical defence based on pyrrolizidine alkaloids. *Animal Behaviour* 54(4): 985-991, 2 figs., 2 tabs. (October) [general]
- Casagrande, Mirna Martins**
1998a. See Mielke, O. H. H. & M. M. Casagrande, 1998a.
1998b. See Mielke, O. H. H. & M. M. Casagrande, 1998b.
1998c. See Mielke, O. H. H. & M. M. Casagrande, 1998c.
- Casagrande, Mirna Martins, and Olaf Hermann Hendrik Mielke**
1998. Plantas hospedeiras das espécies de *Agrias* Doubleday (Lepidoptera, Nymphalidae, Charaxinae). *Revista brasileira de Zoologia* 14(3): 771-772 (30 April) [*A. claudina claudianus* Staudinger, *A. c. godmani* Fruhstorfer, *A. amydon ferdinandi* Fruhstorfer; Brazil]
- Casagrande, Mirna Martins, Olaf Hermann Hendrik Mielke and Keith Spalding Brown, Jr.**
1998. Borboletas (Lepidoptera) ameaçadas de extinção em Minas Gerais, Brasil. *Revista brasileira de Zoologia* 15(1): 241-259, 25 figs. (14 August) [general]
- Castañeda, Bertha Andrea**
1995. See Torres, R. et al., 1995.
- Cevallos, Varsovia**
1998. See Onore, G. & V. Cevallos, 1998.
- Chacón, Patricia**
1997. See Prieto, A. V. et al., 1997.
- Chadee, Dave D.**
1998. Observations on the migratory patterns of the butterfly *Phoebis statira* (Cram) in north and south Trinidad. *Living World* 1997-1998: 31-32, 1 fig. (March) [behavior]
- Chiba, Hideyuki**
1996. Wing pattern of butterflies: evolution or emergence? *The Nature & Insects* 31(1): 9-13, 3 figs. (January) [In Japanese] [general]
- Chumpitazi, Miguel E.**
1998. Life history of *Eurytides protesilaus dariensis* (Rothchild [sic] & Jordan 1906). *News of the Lepidopterists' Society* 40(3): 45, 6 figs. (15 June) [host plant; Costa Rica]
- Clavijo, José**
1998. See Marmels, J. de & J. Clavijo, 1998.
- Cock, Matthew J. W.**
1996. The skipper butterflies (Hesperiidae) of Trinidad. Part 8, Genera group E (second section). *Living World* 1995-1996: 27-37, 41 figs. (July) [new species: *Staphylus kayei*; life history; host plants]
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BOOK NEWS

NABOKOV'S BLUES: the Scientific Odyssey of a Literary Genius

by K. Johnson and S. Coates. 1999. 372pp, 8 B & W pl. (15 x 24cm). Zoland Books, Cambridge, MA. \$27 cloth.

The famous novelist, Vladimir Nabokov, is the subject of this biography in relation to his scientific pursuits with the blue butterflies of Latin America. This book gives the chronology of his studies on Neotropical blues, but also delves into the taxonomy of the species he studied. The readable text invites continued reading to the end, giving a fascinating commentary on Nabokov and this lesser known part of his life.

VÉRA'S BLUES: First Editions by V. Nabokov Inscribed to His Wife

edit. by S. Funke. 1999. 267pp, 36 col. pl. (15 x 24cm). Horowitz Booksellers, New York, NY. \$125 cloth, \$75 paper.

Although this pricey book is an elaborate color sale catalog of the first editions collection Nabokov had in his library at the time of his death, each book inscribed to his wife Véra and with a colored drawing of a butterfly drawn by Nabokov (usually fanciful) added, this book catalog also includes an interesting commentary by Kurt Johnson and Brian Boyd. There are articles by S. J. Gould, M. Wood, J. Salter, and S. Schiff.

LEPIDOPTERA OF GUIсандAO ISLET

by H. Y. Wang and J. Y. Lee. [1999]. 166pp (full color). Ilan Co. Mus. Nat. Hist., Ilan, Taiwan. NT\$260 (ca. \$7.50).

Turtle Island (or Guisandao) is a well-known landmark just offshore from the northeast coast of Taiwan, just south of the Taipei latitude. The island is a mountainous cone not sampled for Lepidoptera in decades due to its former military use. The authors surveyed the island and completed the color booklet illustrating a number of species of moths and butterflies commonly encountered there. Text is in Chinese (scientific names in Latin).

ESPERIANA. Band 7

edit. by H. Hacker. 1999. 773pp, 27 col. pl. (16 x 24cm). Esperiana Buchreihe, Schwanfeld, Germany. DM 295 (ca. \$185) cloth.

This 7th volume in the hard-bound journal, *Esperiana*, includes a number of papers on the insect fauna of Yemen as Part 1. Part 2 follows with a dozen other articles on various Old World genera, mainly on Noctuidae. The color plates are at the end of the book.

THE LIVING TROPICAL GREENHOUSE: Creating a Haven for Butterflies

by J. Tampion and M. Tampion. 1999. 128pp (full color) (18 x 29cm). GMC Publ., Lewes, E. Sussex, England. £12.50 (ca. \$21).

This color book gives practical advice on how to care for tropical butterflies in a greenhouse. The most adaptable and available species for living colonies are discussed, including their rearing and feeding.

FLORIDA BUTTERFLY GARDENING: a Complete Guide to Attracting, Identifying, and Enjoying Butterflies of the Lower South

by M. C. Minno and M. Minno. 1999. 210pp (full color) (21 x 28cm). Univ. Press. Florida, Gainesville, FL. \$34.95 cloth.

In addition to being a complete guide to butterfly gardening, this book also is a guide to the butterfly species of Florida and neighboring states. The species of each family are treated, noting identification points, life history and hostplants. The color figures include many photographs of the immature stages. Adults are mostly shown as spread specimens. There is a long introduction to butterfly ecology and natural history in Florida.

LE PAPILLONS DU QUÉBEC

by L. Handfield. 1999. 984pp, 121 color pl. Broquet Publishing, Boucherville, PQ, Canada. \$90.

This color guide to the Lepidoptera of the Province of Quebec, Canada, includes figures of 2650 specimens and treats 1450 species. The work is in French, but there is an English "User's Guide" to help English-speaking users in using this book.

LEPIDOPTERA OF BELIZE: 1. Butterflies. 2. Emperor Moths and Hawk Moths

by J. Meerman. 1999 (Dec). 64 pp, 3 color pl. (21 x 28cm). ATL (*Trop. Lepid.*, Vol. 10, Suppl. 1). Sent free with *Tropical Lepidoptera* journal (extra copies: \$10); \$18 non-members.

The catalogs for butterflies and two of the moth families for the small Central American nation of Belize are presented as based on surveys conducted by the author throughout Belize, with notes on historical listings and current distributions. Hostplants are noted for many species. There are separate host indexes and name indexes for the butterfly and the moth sections. The last pages include field forms to record all species of these groups in Belize. An introduction covers Lepidoptera habitats and ecology in Belize.

PASSINGS

† Dr. Ross H. Arnett, Jr., 16 July 1999, in Gainesville, Florida, at age 80. Dr. Arnett was an eminent coleopterist, author of numerous books on beetles and insects in general. His most recent works included *Beetles of Northeastern North America* (co-authored with N. Downie) and his well-known *American Insects* (revised just before his death). He was working on a revision of his 1963 *Beetles of the United States* and had most of it already completed. He organized the Coleopterists' Society and founded its journal, the *Coleopterists' Bulletin*. He started and edited a popular insect journal in the 1970s, called *Insect World Digest*. He also was founder and editor of the journal, *Insecta Mundi*. He was a Life Member of ATL, supporting our organization from its inception even though his main interest was with beetles.

MEETINGS

2000 Association for Tropical Lepidoptera: April 14-16, Gainesville, Florida, USA
Societas Europaea Lepidopterologica, May 28 - June 1, Białowieża Forest, eastern Poland
XXI International Congress of Entomology, August 20-26, Iguazu Falls, Brazil

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