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Charles Valentine Riley. Founder of modern entomology

W. Conner Sorensen, Edward H. Smith & Janet R. Smith, with Donald C. Weber

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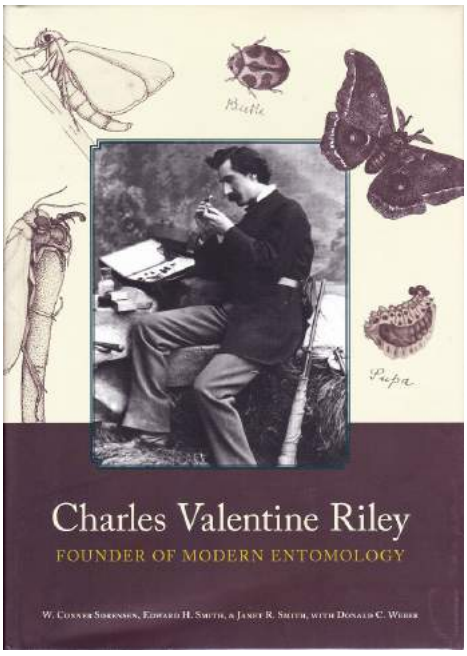

The Joint Commission of the Scientific Societies of Washington had its Annual Meeting on January 18, 1896, just a few months after the unexpected death of Charles Valentine Riley (C.V. Riley). The event started with a memorial lecture in appreciation of the gifted polyglot, artist, poet, writer, philosopher, naturalist, inventor, politician, teacher, and scientist. "The name of Charles Valentine Riley is known in every part of the world where there are naturalists or intelligent agriculturists" was the first sentence pronounced (Brown Goode, 1896).

The contributions of C.V. Riley to Entomology and Economic Entomology during the 19th century and its influence way into the 20th are many and undeniable, he was, by far, "the most eminent [economic entomologist] the world has ever seen" (Fletcher, 1895). W. Conner Sorensen (Scientific Writer), Edward H. Smith (1915-1912) (Cornell University), Janeth R. Smith (1922-2018) (E.H. Smith Assistant, partner), and Donald C. Weber (USDA) compiled an astonishing amount of information and details to amaze us with this highly informative book, the comprehensive biography of the man entomologists appropriately regard as the "founder of modern entomology" and the "father of biological control" (Packard 1895, Brown Goode 1896). The body of the book includes 15 chapters.

From Chapters 1 to 3, we learn about C.V. Riley's birth at Caroline Cottage, Queen Street, Chelsea, West London, England, as the illegitimate son of the Anglican minister Charles Edmond Wylde, and the attractive, educated, impetuous and strong-willed Mary Louise Cannon. He would be educated in some England, France, and Germany aristocratic schools, became interested in collecting insects, and he even wrote a small book where he sketched butterflies and moths in various developmental stages. He got fascinated with nature and was well trained in art. By 16, he fluently spoke not only English (his mother tongue) but French, German, Latin, and Greek. At that age, and with little prospects for the future in his motherland, he boarded a ship to the U.S. listing his occupation as "Farmer." Once he reached New York, he quickly took a train to Chicago and from there he went to Kankakee, Illinois, to join friends of other members of his family, and became a farmer. Sometime later he decided to leave his farming days and moves to Chicago, carrying a microscope and his Insect Collection. Once in Chicago, he caught the attention of the entomologist Benjamin D. Walsh (1808-1869), a former classmate of Charles Darwin (1809-1882), who had also emigrated to Illinois and was devoted to the study of insects affecting crops and orchards. Riley would draw insects for several Walsh's publications. He then established communication with other U.S. leading entomolo-

gists and started writing for the *Prairie Farmer*, a publication focused on agricultural issues. After enlisting and expending few months in Company C, 134th Regiment of the Hancock Guards, Illinois Volunteers, he was discharged. He went back to the *Prairie Farmer* where writing Entomological Notes encouraged farmers to manage insect pests of crops through the combination of biological, mechanical, cultural and chemical methods, to manage insect pests.

In Chapters 3, 4, 6 and 7, we learn about his moving to St. Louis, where he would be hired as Missouri's first State Entomologist, the third in the nation. He would become engaged in the study of pests such as the Colorado Potato beetle (*Leptinotarsa decemlineata*; Chrysomelidae) and the now-extinct migratory Rocky Mountain locusts (*Melanoplus spretus*; Orthoptera) in the U.S., as well as the grape phylloxera (*Daktulosphaira vitifoliae*; Phylloxeridae) in France. There, he eventually became revered for helping save the country's wine industry. He would report, lecture and successfully help manage and control those and other pests. In chapter 5 we read about his Darwinian points of view through his studies and detailed reports about mimicry in monarch and viceroy butterflies, and the coevolution traits of the Yucca moth, an obligated pollinator of Yucca plants. His successes, self-teaching, and field-training in Natural History, combined with his artistic talents, keen experimental abilities, detailed written reports and sketched field and lab observations would make him a well-respected state entomologist and would promote him to be later proposed as federal entomologist (Chapter 8). Chapter 9 deals with the development of the division of Entomology in Washington, its successes and Riley's involvement in developing equipment to better apply chemical products and the focus into including them as another technique to manage pests' populations.

Throughout the book, we also learn about his agreeable relations with family and friends, and Chapter 10 deals with these, especially after he settled in Washington D.C. He was enthusiastic about promoting silk culture by using certain American moths, even though he was clear that U.S. silk production could never compete with silk producers of Asia and Europe (Chapter 11). His fight against scales affecting Citrus crops in several parts of the US and a complete background and detailed story of the Cottony Cushion Scale (*Icerya purchase*; Monophlebidae) affecting citrus and almost wiping-out the citrus industry in California and the efforts leading to the discovery of a fly parasite (*Cryptochaetum iceryae*; Cryptochaetidae) and its predator, the Vedalia beetle (*Rodolia cardinalis*; Coccinellidae) are narrated in chapter 12.

We also learn (chapter 13) about the establishment of the National Insect Collection in Washington where he became the first curator. Riley's strong political views, his fights against the system, and in favor of farmers are discussed in several sections. Especially detailed is his clash against the patenting system. He would transform the science of Entomology from just collecting insects and taxonomy work to establish an applied management approach to insects involving evolution, ecology, and behavior. His interdisciplinary strategies to study and handling many relevant agricultural insect pests would make him the highest-ranked officer at the Entomology division of the USDA, and the curator of insects at the Smithsonian Institution, whose entomological collection was founded by donating his own collection of more than 115,000 specimens (Essig 1931, Mallis 1971, Sorensen 1995). The 15th and final chapter of this biographical work tell us about his unfortunate early retirement and his untimely death at 52. A list of all insects mentioned throughout the book as well as notes and a thorough index is included in the final pages.

This exceptionally well-written book not only describes in detail the life of C.V. Riley, but it also brings us details about the development and professionalization of the fields of systematic and economic Entomology.

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