



Editorial

The Edward A. Steinhaus Index Cards Collection



This year (2019), marks the 50th anniversary of the passing of Edward A. Steinhaus (1914–1969; Fig. 1), the founder of this journal as well as the “founder of modern insect pathology” (Tanada and Kaya, 1993).

Because some invertebrate pathologists might not be familiar with Steinhaus’s legacy, a brief introduction is in order. He was born in North Dakota in 1914 and received his B.S. degree from North Dakota State College (present day North Dakota State University) in 1936, followed by a PhD from Ohio State University in 1939. From 1940 to 1944 he worked for the U.S. Public Health service at the Rocky Mountain Laboratory in Montana, where he published his first book (Steinhaus, 1942), based on his PhD dissertation. He joined the faculty of University of California, Berkeley in 1944. He was a co-founder of the *Annual Review of Entomology*, first published in 1956, and in 1959 he founded the *Journal of Insect Pathology*, which he wanted to name *Journal of Invertebrate Pathology*, but the publisher (Academic Press) objected (Steinhaus, 1975). He changed the name to *Journal of Invertebrate Pathology* in 1965 (Steinhaus, 1975) and, by 2012, over 5000 peer-reviewed articles had been published in the journal (Vega and Kaya, 2012). He became Dean of the Division of Biological Sciences at the University of California, Irvine, in 1963, and in 1967 he founded the Society for Invertebrate Pathology (Steinhaus, 1967, 1975). He was elected a Fellow of the Entomological Society of America in 1954, and a member of the National Academy of Sciences in 1968.

The first article by Steinhaus was published in 1938 and by the time he passed away at a relatively early age in 1969 he had authored ca. 132 publications (Knipling, 1974), equivalent to more than four papers per year. This was a prodigious output, not only because it was accomplished in the pre-computer era, but also because he rejected the idea that a thesis advisor should implicitly be included as a co-author of his students’ papers (Steinhaus, 1975). He was a co-author with only one of his students because the project was already advanced when the student joined the team (Steinhaus, 1975). His publications include

several landmark works in insect pathology and microbiology (Steinhaus, 1946; 1949, 1963; Martignoni and Steinhaus, 1961; Steinhaus and Martignoni, 1967) that every insect pathologist should be familiar with.

In 2012, I received a gift from Martin (Marty) Shapiro shortly before he retired from his position as an insect pathologist with the U.S. Department of Agriculture, Agricultural Research Service in Beltsville, Maryland. Marty was familiar with my interest in history and asked if I wanted three boxes containing bibliographic citations in 3” × 5” index cards (Fig. 2) that once belonged to Steinhaus.

The concept of having a bibliography in index cards was quite common in the pre-computer era. This system was similar to the card catalogs at libraries that allowed users to find a reference and request it from the stacks. Carl Linnaeus (1707–1778) was one of the first scientists to use “index cards” in order to manage the information overload related to genera and species being described at the time (Müller-Wille and Scharf, 2009; Müller-Wille and Charmantier, 2012).

The collection consists of 1769 index cards: 636 in the first box; 659 in the second, and 474 in the third (Fig. 2). The earliest reference is Du Halde (1736) and the most recent is Masera (1957). Several people were involved in putting these reference cards together based on the many different types of handwriting. Most of the citations are typed and have handwritten corrections, but many are handwritten (Fig. 3).

In the posthumously published *Disease in a Minor Chord* (1975), Steinhaus’s wife, Mabry, writes in the Foreword: “The bibliography has been especially difficult to assemble. Ed left only about one hundred complete references, which meant that I had to track down over seven hundred more. The extensive Steinhaus reprint collection (some 11,000 items at the time of his death) was indispensable to this chore.” She also thanks two people “who typed portions of the manuscript and the total bibliography from the original reference cards.” It appears that what she refers to “the original reference cards” are not the cards in the three boxes, based on many references cited in the book not being included in

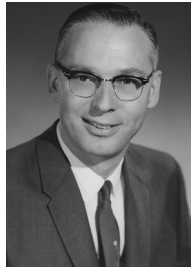


Fig. 1. Edward A. Steinhaus. Courtesy of the Essig Museum of Entomology, University of California, Berkeley.



Fig. 2. The Edward A. Steinhaus Index Cards Collection consists of three boxes containing 1769 index cards.

the index cards and some index cards including more or fewer details than the reference in the book.

In the Preface to “Principles of Insect Pathology” Steinhaus states “The literature contains over 5000 references dealing with the diseases of insects, and to attempt to include all these would defeat the purpose of the book. Care has been taken, however, to list those references which will lead the reader to most of the significant contributions made in each particular phase of the subject” (Steinhaus, 1949). Thus, it is possible that he prepared index cards for what he considered to be

significant contributions. The massive amount of literature he was dealing with made it unfeasible to have individual index cards for each reprint. This is further corroborated by the ca. 11,000 reprints he had collected by 1969 (Steinhaus, 1975). Many of the index cards match citations in *Insect Microbiology* (Steinhaus, 1946) and *Principles of Insect Pathology* (Steinhaus, 1949) and might have been used in the preparation of these books.

Steinhaus’s accomplishments were formidable, and it is important for all of us to honor his memory.

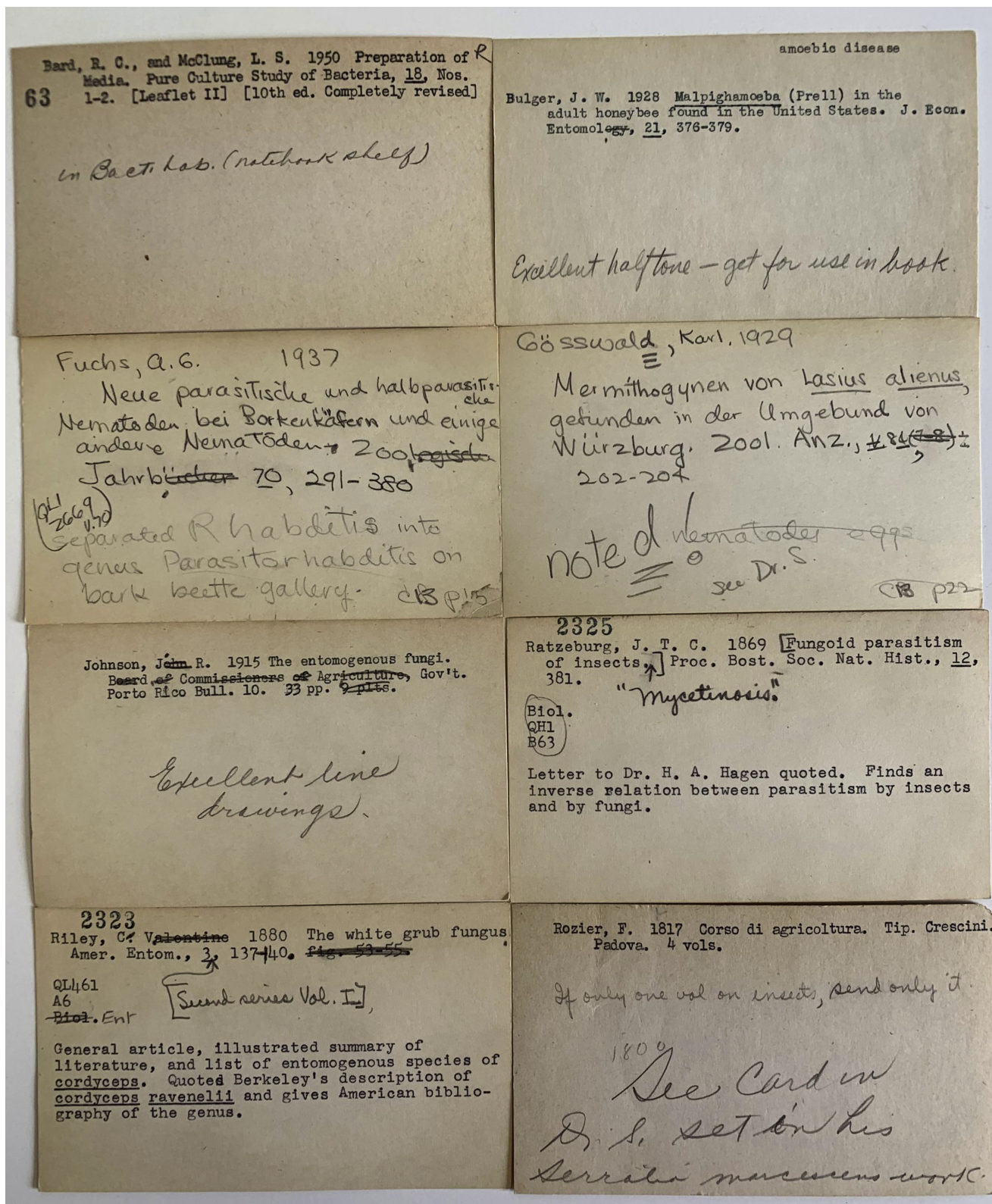


Fig. 3. Eight index cards from the Edward A. Steinhaus Index Cards Collection. The Bard and McClung reference includes a handwritten note as to where the reference can be located: "in Bact. Lab (notebook shelf)." A handwritten note at the bottom of the Bulger citation is in Steinhaus's hand, based on a comparison with a handwritten message in *Journal of Insect Pathology* stationery in the author's possession. The note states "Excellent half-tone - get for use in book." Bulger is cited in "Principles of Insect Pathology" but the half-tone was not included in the book. The index card with Gösswald's reference includes a "See Dr. S." note in pencil at the bottom. Ratzeburg's citation is noteworthy due to the use of two terms rarely used in insect pathology: fungoid and mycetinis. Riley's card includes a very interesting note concerning *Cordyceps*.

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