

CONTRIBUTIONS DEDICATED  
TO  
HOWARD E. EVANS



Howard Ensign Evans, 1919 – 2002

## Howard E. Evans: Known and Little-known Aspects of His Life on the Planet

MARY JANE WEST-EBERHARD

Smithsonian Tropical Research Institute, Balboa Panama.

Mail: c/o Escuela de Biología, Universidad de Costa Rica, Costa Rica.

e-mail: mjwe@sent.com

Howard Evans was not much given to sentimentality or self-celebration, and he might not have approved of a memorial volume in his honor. And yet this supposedly shy and unsentimental man, a man who treasured fieldwork in remote and beautiful places far from people, and who often, in good humor, compared humans unfavorably with cockroaches and fleas, said something quite touching, at the conclusion of an autobiographical sketch he wrote in 1999. In the final sentence he refers to what he calls the “sterling people” he had known—his students and his colleagues in entomology over the years—and he says that knowing these people had been “the greatest reward” of his professional life. So perhaps any grumpiness about this volume, bringing together articles on natural history and insect biology by a group of his friends and admirers, would have been short-lived.

Howard Ensign Evans was born in Hartford, Connecticut, on 23 February 1919, the son of Archie James Evans and Adella Marian Ensign. His maternal grandfather, Howard Ensign, a successful tobacco farmer, financed the purchase of a 60-acre tobacco farm for Archie Evans at the time the couple were married. Howard’s mother was his father’s second wife. She had been teaching school after having studied education at a normal (state teachers’) school, and Howard was her only child, though he had a stepbrother and three stepsisters by his father’s first marriage.

Howard’s love of nature began on the Evans family farm near East Hartford, Connecticut. In his earliest years he was strictly an applied entomologist. Here is what he wrote about that stage in his life:

I suspect that when most people dig into the recesses of their minds for their earliest childhood memories they come up with scenes of kittens, puppies, or hamsters. My earliest memories are of tobacco hornworms, and how delightfully they pop and ooze between bare toes. Picture a tobacco farm in the Connecticut Valley, with kids walking up and down the rows looking for big, green caterpillars and executing them by the most primitive of control measures” (Evans, 1985, p. 145).

As a youth, Howard helped to found the Hockanum Nature Club, a museum in a woodshed with collections of pressed leaves, wildflowers, birds’ eggs, and, of course, insects. The name of the club came from the Indian name for the region of the Evans farm in East Hartford. Howard Evans undoubtedly had something to do with choosing the name, for later he often used indigenous words as names for new species of insects discovered during his travels, for example, naming the Australian sand wasp *Bembix mianga*, a fly-catching species, after the aboriginal word (mianga) for “fly,” and *B. uloola*, a bright orange species, after the aboriginal word, uloola, for “sun” (Evans and Matthews, 1973). His “first wealth (several dollars!)” came when he sold some of the moths that came to the lights of the family fruit stand to a neighborhood hobbyist (Evans, 1968a, p. 25).

Life on the farm was ended not by tobacco hornworms, but by a series of hailstorms and a drop in the tobacco market that eventually drove Howard's father to other crops and eventually to bankruptcy during the Depression of the 1930's. But his rural background was a lasting influence and inspiration. Even as an undergraduate Howard wrote, in a classroom essay on "Experiences With Insects,"

I think the modern mind tends to debunk, or at least to minimize, the values and advantages of being country bred. . . . But I am sure that the appreciation of country life is merely going under a cloud, and will emerge again when the people once more take to the country rather than swarming in the cities like flies on rotten fruit. . . . Although my family moved away from the farm into the suburbs a few years ago, my absence from the country has tended to accentuate rather than suppress my affinity for the things of nature. . . . My hobbies then were not the ordinary ones, such as stamp or coin collecting, but consisted of recording the living things I saw, especially the birds, and, best of all, collecting insects. . . . I was an odd but happy figure in those days, roaming the countryside with a net in one hand and a pair of binoculars in the other. . . . I first became really interested in insects when I began to notice the attractiveness of certain moths which swarmed around the street lights. . . . The idea of making a net and of mounting what I caught in boxes of cotton covered with glass was adopted from a friend engaged in the same diversion. I soon became fanatic about the business, and, much to my parents' disgust, spent hour after hour chasing "bugs" over field and stream.

When he finally tired of the hobby, after three years of collecting, he had over three hundred "scientifically worthless" poorly mounted and labeled specimens, some of them reared from the larval or pupal stages. Nonetheless, he states in the college essay, they were "of great value to me sentimentally" and had once provided "unforgettable pleasures." In closing he writes "If I decide to major in entomology, it will not be so much because of my past familiarity with insects, which really did not amount to much, but because of the importance that insects as a group play in this world." Anticipating the theme of his book *Life on a Little-known Planet*, written more than thirty years later, he asserts that ". . . man has hardly begun to explore the insect world." He concludes that entomology should consequently prove "a broad and fascinating field or vocation," and, he adds with characteristic candor, one "in which there is not quite as much competition as in many others."

Howard credited his father with his "workaholic tendencies," and was encouraged in his interest in natural history by his mother, who taught him the names of many birds, insects, stars etc.. Even so, when he went to the University of Connecticut in 1936 he started out as an English major. He switched to biology after his first course in entomology, taught by J. A. Manter, described by Howard as "a very unusual teacher" who "in his quiet way . . . introduced me to the world of professional entomology" (Evans, 1968a, p. 25). After writing an undergraduate thesis on insects reared from the downed trees and branches of the 1938 hurricane, he graduated *magna cum laude* in 1940.

The intention to major in English probably reflected his lifelong passion for writing. His first book was a volume of poetry titled *The Song I Sing* (1951), a compilation of poems previously published in the Hartford newspapers, and during spare moments while later in the army he wrote a novel which he later destroyed. Throughout his active life as a scientist he wrote popular books, not all of them related to entomology. The best known of his 16 books, *Life on a Little-known Planet* (1968a), was translated from English into French, German and Japanese, and was reprinted many times during the more than thirty years that it has remained in print. Unlike some populizers of science, Evans did not lose respect in science as a result of his popular writing because his scientific output—a lifetime total of 265 scientific publications including a number of books and monographs (see



Fig. 1. Howard Evans in 1951.

Appendix 1) was undiminished by his avocation as a writer for the general public. It was as if he led two highly productive lives in perfect harmony with each other.

Immediately after college graduation Howard worked at the Connecticut Agricultural Experiment Station in New Haven, then went to Cornell where he completed a Masters thesis on spider wasps (Pompilidae). Then, in December of 1941, while he and his mother listened to the NY Philharmonic on the radio, indulging a love of classical music acquired while in college, he learned of the attack on Pearl Harbor, and Howard asked his draft board to move his name to the top of the list. He spent four years in the army. Since he already had a master's degree in entomology, he was assigned to be a medical laboratory technician in a hospital in Newfoundland, where he discovered that a mysterious ailment of servicemen was being caused by the parasite *Giardia*. Probably as a result of that discovery he was promoted to second lieutenant upon return to the U.S., and he spent the rest of the war at a base hospital in North Carolina working as a parasitologist on stool samples from servicemen returning from the Philippines. In one of his books (1985, p. 125), he said of this experience that "In a grim and odorous way, it was rather fun." As a result of this stint in the armed services he was able to return to graduate studies at Cornell without financial problems, thanks to the GI bill. At Cornell, with J. Chester Bradley and V. S. L. Pate as co-chairmen of his doctoral committee, he finished a doctoral

thesis on the systematics of the tribe Pompilini (Hymenoptera, Pompilidae), and then joined the faculty of Kansas State University in Manhattan, Kansas, as assistant professor of entomology. At Kansas State he taught courses on General Entomology, Immature Insects, and Morphology and curated the insect collection (from an unpublished "History of the Department of Entomology, KSU," by Herbert Knutson, deposited in the Department; courtesy of John Reese). There he spent three productive years (1949–1952) studying the behavior and systematics of sand wasps, along with his graduate students Carl Yoshimoto and C. S. Lin. During this time he expanded his general interest in animal ethology with the encouragement of a fellow faculty member, A. M. Guhl, a well known student of peck order in chickens, and read works by Lorenz, Tinbergen, Thorpe and others. During this period he also took a summer field trip to Mexico with the late Paul D. Hurd, Jr. of the University of California.

Howard Evans and Mary Alice Dietrich were married in 1954, soon after Mary Alice had finished her PhD in science education at Cornell, and not long after Howard had returned to work there as assistant professor of entomology in 1952. They had three children, Barbara (Galloway), Dorothy (Tuthill), and Tim. Mary Alice was the daughter of the Cornell entomologist Henry Dietrich, who had "warned his daughters to stay away from entomologists, who were likely to be impecunious and little appreciated by society." "Fortunately," Howard wrote, "Mary Alice failed to take his advice" (1985, p. 217). Howard declared, in his autobiographical notes, that "few persons have been lucky enough to enter a partnership with someone so congenial and supportive." He considered his marriage to Mary Alice his main not-exactly-scientific achievement, and meeting her in 1953 "the most important (and fortunate) event in my life." During the early years of their marriage the Evans's lived on eight acres of land on South Hill in Ithaca, New York, adjacent to Buttermilk Falls State Park, a home that became the inspiration for *Wasp Farm* (Evans, 1963), one of Howard's most successful books and a nominee for the National Book Award. With Mary Alice as senior author, they wrote a 363-page biography of Harvard entomologist William Morton Wheeler (Evans and Evans, 1970), a major figure of early 20<sup>th</sup> Century science whose story as recounted in the Evans biography gives a fascinating view of the issues, personages and Old-world influences that marked biology in the U.S. at the turn of the 20<sup>th</sup> century.

When I first met Howard Evans, in 1966, I was a graduate student at the University of Michigan. By that time he had moved from Cornell to Harvard, and I had an appointment to meet him in his office at the Harvard Museum of Comparative Zoology, the MCZ. I was pretty green and innocent at the time, and I approached the broad front steps of the Museum as if they were the entrance to a shrine, imagining the giants of biology who had passed that way—Agassiz, William Morton Wheeler, Joseph Bequaert; and more recently Philip Darlington, E.O. Wilson, George Gaylord Simpson, Ernst Mayr—and Howard Evans himself, for me, a novice in the wasp business, the greatest hero of all. I had heard that Evans was shy and reserved, a man of few words. What if we would end up having nothing to say? I soon found out that Howard Evans was the kindest and least pretentious of men, and he was not the least bit shy when it came to talking about wasps.

Later I learned that some people misinterpreted Howard's shyness as snobbishness. One person told me that she had ridden with Howard on the excruciatingly slow MCZ elevator many times over the space of an entire year without Howard ever saying a single word. He would just stare absently and look pan-faced. He wouldn't smile, and sometimes he seemed to have a little smirk. In this and in other ways he did not fit the image of the urbane Harvard professor, but for many of us that was part of his charm. Those who knew



Fig. 2. Howard Evans in 1963.

Howard well, especially those who spent time with him in the field, learned that he was a person who was not embarrassed by silence.

When I went to the MCZ as Howard's postdoctoral associate in 1967 I discovered that he was completely human. He had three cute kids and a no-nonsense wife named Mary Alice with a sense of humor and a career of her own. Howard was at the height of his productivity. The year before, 1966, had been what he later called his "banner year." In that single year he authored 10 publications, totaling well over 1000 pages. They included his now classic synthetic review on "The behavior patterns of solitary wasps" (Evans, 1966a), a 526 page book on *The Comparative Ethology and Evolution of the Sand Wasps* (1966b), and a 443 page monograph on the systematics of pompilid wasps (Evans, 1966c), an astounding list of achievements for one man in one year. In 1967 Howard was awarded the William J. Walker Prize of the Boston Museum of Science, for contributions to natural history.

How did he do it, you may ask, so much writing in so little time? I was there when he was writing *Life on a Little-known Planet*, and I had a chance to observe his disciplined habits. He divided his work day strictly in two: while at the Museum he did his "scientific" work, and at home he did what he called his "literary work," meaning work on the essays and books that were outside of his Museum duties. At home, he often played recorded music while working or relaxing. He would always leave his desk at the Museum completely clear of clutter. I still think of Howard's clean desk every time I have to remove the mountains of papers and books from our dining room table in order to entertain guests.

Some think that Howard's clean desk top was made possible by a set of messy drawers underneath. I have my own hypothesis about how Howard got so much writing done so fast with so little mess. I think he had special neurons that were connected directly from his eyes and brain to the printed page, so that anything he observed was immediately published. Whatever his secret for rapid publication, Howard never seemed pressured or nervous, even when, in 1968, he was interviewed on the popular television "Today Show" to publicize his book. He always had time for students. He never seemed too busy to write an encouraging letter to an amateur insect enthusiast, or to a kid hoping for a career in entomology. At Harvard his only graduate student was Robert Matthews, and the Matthews and Evans families spent a productive year of fieldwork in Australia in 1969. On a later sabbatical (1979) the Evans's were accompanied in Australia by Howard's CSU graduate student, Allen Hook.

E. O. Wilson recently told me the following story from those days at Harvard. When Howard was in his office he sat hidden from view behind a high bookcase, and the department secretary worked at a desk on the other side, near the door to the collection. If you came for department business you never knew whether Howard was present on the other side of the bookshelf, and if he ever listened to what went on there he never let on. Ed Wilson decided to put this to the test by performing an experiment. He knew that Howard and Mary Alice were working on their biography of Wheeler, and that they had spent hours interviewing Wheeler's daughter Adaline. But there weren't many other people still around who had known Wheeler. So, to test Howard's discretion, Ed walked in and said to the secretary, in a squeaky imitation of a 95-year-old voice, "I am a friend of Professor Wheeler, and I'd like to see him." That did it: Howard instantly popped into view, revealing himself to be as much an eavesdropper as anybody else.

Howard considered his move from Harvard to Colorado State University in Fort Collins, in 1973, one of the best things he ever did. Tired of the long commute between home and the Museum, disillusioned with a new administration at the MCZ, and with good places for fieldwork diminishing in Massachusetts, the Evans family decided to move. As Howard put it, they decided not to give Harvard tenure.

Howard's unpublished autobiographical essay, "A Brief Review of Scientific Accomplishments," written when he turned 80 (in 1999), mentions that when the Evans family moved to Colorado State he actually accepted a non-tenured position! He had already published 170 papers and 6 books. Not surprisingly, he received tenure at CSU soon after he arrived. There he served as advisor for several graduate students, including the late Byron Alexander (a CSU Masters' student who later studied with George Eickwort at Cornell), Darryl Gwynne, Mary Hathaway, Allan Hook, Rob Longair, Kevin O'Neill and William Rubink. Three years after the move to Colorado Howard was awarded the Daniel Giraud Elliot medal (1976) by the National Academy of Sciences, given for "recently published meritorious work in zoology." Previous winners of that award were T. Dobzhansky, G. G. Simpson, E. Mayr and W. M. Wheeler. A year later (1977) he was elected to the U.S. National Academy of Sciences. Howard says in his essay that he had "no illusions about these awards" and once in a letter he told me that he thought of dropping out of the Academy, which he called "an elitist club" that wasn't "his cup of tea," but that he kept his membership in the hope of helping to elect other field biologists to the Academy. He did regard election to the Academy as an important recognition. With characteristic modesty he mentions, in the unpublished "Autobiographical Notes" written for his family, that it was "an indication that I have done reasonably well as a scientist."

I think it is fair to say that Howard Evans was one of the finest entomologists of all time. Not only was he the leading authority on a number of large groups of insects, but he published widely on insect behavior, larval morphology, and insect paleontology. By 1999 Howard Evans had described a total of 782 new species of insects, plus 31 new genera, and even a new family—the *Scolecbythidae*, a family of wasps found in the Southern Hemisphere. Ten of the new genera are based on study of fossils. A complete list of his 265 scientific publications (Appendix 1), and popular articles and book reviews (Appendix 2), including 10 books, follows this essay.

Among Howard's scientific papers are some on evolutionary biology and systematics that contributed to a change in how taxonomy was done. He was a pioneer in the use of behavioral data in systematics, and he proposed a number of important ideas that I would call "transition hypotheses" showing how complex behaviors such as nest building, social life, and specialized prey transport could have evolved from hypothesized ancestral states. Along with phylogenies and adaptive explanations in terms of natural selection, such hypotheses, establishing the feasibility of particular phenotypic changes, are an essential part of evolutionary explanations. One such paper, which he describes as "slapped together" and "too simplistic" was his classic article on the evolution of sociality in wasps (Evans, 1958). Although he wrote in his unpublished "Brief review of Scientific Accomplishments" that he had "never been especially proud of this paper," it was one of the few to discuss the transitions to sociality taking the behavior of numerous taxa into account and as a result frequently has been cited. Howard was more fond of publications packed with new data on natural history, such as his 1970 monograph on "Ecological-behavioral studies of the wasps of Jackson Hole, Wyoming" (Evans, 1970). "I have always been especially proud of that paper," he wrote.

Some of Howard's theoretical ideas were far ahead of their time. He had data on wasps that showed how behavior, including learning, could affect evolution, and he discussed the general importance of this especially in his 1966 book on sand wasps (see also Evans, 2002). Howard's ideas on how behavior can take the lead in evolution are now being cited more frequently than before, because finally evolutionary biologists are seeing how the condition sensitivity of organisms can supplement the genetic study of evolution. Howard saw that connection long ago, and because of it he wrote important critiques of overly gene-centered thinking, such as some analyses involving kin selection (e.g., see Evans, 1977). One paper he considered underappreciated described what he called dual sex-limited mimicry in South American Spider wasps (*Pompilidae*), where he showed that in several species the males mimic social wasps and females of the same species mimic tarantula hawks (*Pepsis*) (Evans, 1968b). Howard was naturally creative and independent minded, so he had many important insights that did not fit the preconceptions of the day. For this reason I recommend re-reading his conceptual discussions, at least once every four or five years, on the chance that you will capture an insight that you were not quite ready for before.

Howard Evans was never a powerful administrator or a bio-politician. He didn't run a big lab bustling with technicians. He wasn't a brilliant orator, and he didn't hobnob with the rich and famous. Yet he was a leader among biologists, and had a deep influence on those who knew him. He exerted a special kind of leadership in entomology because he stood for certain values in science and a certain kind of decency in human affairs. His way of promoting those values, aside from his personal interactions with the people around him, was to write—to write clean, beautiful poetic prose that was at the same time light-hearted, and earnest and deep.



I can see three things that Howard Evans stood for, that were his ideals and his crusades, in both his scientific publications and his books and articles written for the general public.

First, he stood for a love of nature, for the humble inhabitants of this planet, especially the insects, and he argued eloquently for their respect and preservation. His arguments for conservation were not so much political as they were personal—his tone was passionate, and philosophical. He tried to make us see ourselves better by reflecting on our humbler, insect companions.

Second, he stood for the value of curiosity-driven research, though it is worth mentioning that he never praised pure science at the expense of the applied, for which he had an equal respect. “Curiosity,” he wrote, “may have ‘killed the cat,’ but it has nourished every good scientist” (1985, p. 23). He defined entomology as “the study of insects as one of the best ways to revel in the joys of discovery.” “So,” he added, with characteristic lightheartedness, “I embrace every biologist who studies insects, whether he likes it or not.”

Third, he defended the importance of research on natural history. He was incensed when he read, in a book review, that “biology is a system that proceeds from biochemistry to the associated subjects of neurophysiology and genetics. All else . . . is stamp collecting.” (1963, p. 149). “If this is so,” Howard wrote, “I can lay no claim to being a biologist . . . I find Darwin, Gray, and Fabre worth emulating in this twentieth century.” But Howard never allowed himself to be preachy and pedantic for very long. In the middle of this tirade about stamp collecting he says: “And it seems unfair to call me a stamp collector when I can never remember what it costs to send a postcard.”

With Howard Evans, science was serious but it was never too serious—there was always room to lighten up, to be an ordinary human. When you worked with him as his post doc—and it must have been the same for his students—you saw what it was to work hard, to be passionate about research, and to be a virtuoso entomologist, but you also got the idea that it was OK to live a normal life.

I was lucky enough to be working with this supremely humane man when I came up against the two greatest crises in the life of a woman in science: the birth of my first baby, and the offer, to my husband, of an attractive job, in a place where there would of course be no formal job for me. A lesser advisor than Howard—or perhaps I should say one with a less strong-minded wife than Mary Alice—might have given up on me then and there. But Howard never said a peep, even when I began to work mostly at home, and most of my projects began to lag, including my chapters for a book we were writing together on wasps (Evans and West-Eberhard, 1970). On the contrary he recommended both my husband William Eberhard and me for a fellowship at a summer research station, even though we would be going there directly from a maternity clinic; and he waited with seemingly endless patience for my chapters of our book. Howard always treated us with respect as a couple, reinforcing our own natural optimism that we would both keep going in science, never turning his back when, in the eyes of others, the signs probably did not look too good.

When we were preparing to move to Colombia, South America, in 1969, Howard did us two very wise favors which we will never forget. Knowing that the university in Colombia would be poor in scientific equipment, and that I would likely be working at home, he sold us—for ten dollars apiece—two antique dissecting scopes that were no longer used at the MCZ, even though they had excellent optics (I never asked him what he did with money). He also gave us a second-hand slide projector, one of those where you push the slides through one at a time, a hand-me-down from the Evans family. We used it to give dozens of talks at universities and schools in South and Central

America, where you could never count on finding a projector, especially one with a good bulb.

Evans' fun-loving side occasionally appeared, especially during field trips, as a slightly mischievous boyish streak, and this seemed to bring out the same in others. In 1972 he visited us in Colombia, a trip that coincided with that of several other well-known entomologists including his former student Robert Matthews, bee specialist Charles Michener of the University of Kansas, and O. W. Richards, the British entomologist and expert in tropical social wasps. Richards and Evans, when together, seemed especially prone to daring misbehavior while collecting. Near our house in Colombia they threw oranges at a large wasps' nest in order, they said, to get a few valuable specimens. I found out about this only because of Howard's published confession in *The Pleasures of Entomology* (1985, p. 224). There he also describes a similar incident in Australia, where he and Richards were stung so badly when they bungled the capture of a large *Ropalidia* nest that their hands were too swollen to dissect its contents.

Howard didn't always bungle collecting—in fact he was legendary for his athletic prowess with an insect net. One of his students, Allan Hook, remembers that once while collecting at night in Australia he and Evans were trying to catch some hawk moths that were zipping up and down a trail. Allan couldn't come close to catching one even though he considers himself especially fast with a net, but Howard managed to get one. When he thrust his hand into the net to extract the specimen he exclaimed "Hey, it's hairy!" The elusive specimens were bats, and Howard was quick enough to catch one.

After Howard retired from his position at Colorado State in 1986 the Evans's moved to a beautiful mountain home 35 miles from Fort Collins. At 7800 feet, it had a spectacular 50-mile view on all sides. The view did not completely distract Howard from writing, and he completed five books and many scientific articles after his retirement. He continued to do fieldwork, and taxonomic research on collections, throughout the rest of his life.

Here are some excerpts from publications by Howard Evans that illustrate his approach to science and nature:

Most of what we know of nature was gathered by persons—many of whom would have to be ranked as "amateurs"—who were *curious*. If we relegate curiosity to a subordinate role, we shall sterilize science. Comments about "relevance" and "the solution of pressing problems" strike me as only a slight improvement over the well-known comment of a former Secretary of Defense that basic research is "when you don't know what you're doing." Basic research is simply modern lingo for satisfying one's curiosity. It is indeed "mission-oriented," and its mission is to add to man's understanding of the world . . . The history of science is the story of a constant flow of useful information from the vast coffers of basic research into human affairs. In these crisis-ridden times it would seem wise to strive to fill these coffers furiously, for we are in urgent need of whatever new ideas and insights may be drawn from them (1968a, p. 275).

There is much to be said for making discovery a way of life, however limited one's resources. . . . It does not pay to worry about the usefulness of a discovery: all we know of the world is the result of discovery pure and simple, and all of technology is the stepchild of science. Now and then, on cold winter days, I like to mull over these high-sounding ideas. But perhaps I am merely rationalizing my summers spent with a camera, notebook, and tape recorder in a place where the buzz of insects fills the air and the bee-wolves are simply being bee-wolves, which is enough (1985, p. 124).

. . . there is something Orwellian about the inexorability of wasps' lives, the tyranny of

their instincts. Wasps share our planet but live in a different world. All about us they wind out their little lives, unaware that man is lord and master of the earth (1963, p.1).

We humans . . . tend to define success in terms of dollars and cents, in terms of how big a “splash” is made in the world, in terms of how much the environment is molded to our ends. But other definitions are possible. If I were to define success as a harmonious living together with the environment, as a gradual unfolding into many small available places in nature, as a surviving for eons of time *without* making a big splash—then the wasps would qualify. But where would that leave man? (1963, p. 173)

. . . my wife and children claim they play “second fiddle” to my wasps. My usual answer is that wasps are, after all, elegant creatures, and they are lucky to be playing second fiddle to them and not, let us say, to chicken lice (1968a, p. 25).

I believe the strongest argument for keeping as much of the natural world as possible in the anthroposphere lies in the human need for variety, individuality, and the challenge of endeavoring to understand the nonhuman world. I believe, too, that immersion in a world of trees, flowers, and wild creatures is needed to nourish human attributes now in short supply: awe, compassion, reflectiveness, the brotherhood we often talk about but rarely practice except on the most superficial of levels . . . Human qualities grow best in an environment that transcends the human, that allows room for a stretching of minds and emotions. (1968a, p. 280).

The earth is a good place to live. We shall appreciate it more and more as we explore the moon and the planets. If man shall ever have another home, it is presently unimaginable. We had better learn to respect the little-known planet beneath our feet (1968a, p. 293).

Howard Evans departed this little-known planet on 18 July 2002, at the age of 83, leaving life here a little better known than it was before he arrived. He never skipped a beat in his correspondence or in his research. He went out, as some say, with his boots on. I suspect he left a clean desk, and up to the last minute he probably had his special neurons working on another good book. I haven't found words eloquent enough to say how much we will miss him, but they would be irrelevant anyway. He made a lasting impression on us because he was a profoundly good man. He wrote thousands of pages to help us identify, love, and understand insects and other living organisms. And he laid his soul bare in his articles and books. Because he did that he will always be with us. Or, as Howard might have written, “he will always be with us, embracing us as entomologists—whether we like it or not.”

#### Acknowledgments

Parts of this essay were presented as a lecture in the symposium “Life on a Little-known Planet: a Tribute to Howard Ensign Evans,” sponsored by the Entomological Society of America, Cincinnati, Ohio, 26 October 2003. I thank Allan Hook and Robert W. Matthews for the invitation to participate, and the ESA and the Smithsonian Tropical Research Institute for financial support. Mary Alice Evans provided a copy of the unpublished scientific autobiography of Howard Evans written in 1999; an essay of personal reminiscences written for his family in 1986; and a complete list of his publications, as well as prompt answers to many questions regarding his life and publications. She and C. D. Michener reviewed this essay and made many helpful suggestions. Darryl Gwynne, Allan Hook, Robert Matthews, and Edward O. Wilson provided information on Evans as colleague, professor and field entomologist. Carl Rettenmeyer, via David Wagner, provided the essay on “Experiences with Insects,” given to him by the late Ralph Wetzel,

mammalogist at the University of Connecticut, upon his retirement in 1983 (Wetzel had been Evans' professor of introductory Zoology). Arnold Menke provided the frontispiece, dated 1968, from a collection of portraits of noted sphecidologists printed by the US Department of Agriculture in 1974. Joetta Weaver assisted with preparation of the lists of publications of Appendices. An additional biography of Howard Evans, with a selected list of his publications, will appear in the Biographical Memoirs of the National Academy of Sciences.

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- Evans, H. E. 1985. *The Pleasures of Entomology*. Smithsonian Institution Press, Washington, D.C., 238 pp.
- Evans, H. E. 2002. A review of prey choice in bembicine sand wasps (Hymenoptera: Sphecidae). *Neotropical Entomology* 31(1):1-11.

#### Appendix 1. Scientific Publications

\*Asterisk indicates a book

1. 1947. Two new spider wasps from southwestern United States (Hymenoptera: Pompilidae). *Entomological News* 58:10-16.
2. 1948. A new subgenus of *Pompilus* (Hymenoptera: Pompilidae). *Proceedings of the Entomological Society of Washington* 50:141-149.
3. 1948. Two new south-western spider wasps (Hymenoptera: Pompilidae). *Pan-Pacific Entomologist* 24:123-130.
4. 1948. Biological notes on two species of *Anoplius* (Hymenoptera: Pompilidae). *Entomological News* 59:180-184.
5. 1949. The strange habits of *Anoplius depressipes* Banks: a mystery solved (Hymenoptera: Pompilidae). *Proceedings of the Entomological Society of Washington* 51:206-208.
6. 1950. The genus *Allaporus* Banks (Hymenoptera: Pompilidae): notes and descriptions. *Entomological News* 61:1-5.
7. 1950. A taxonomic study of the Nearctic spider wasps belonging to the tribe

- Pompilini (Hymenoptera: Pompilidae). Part I. *Transactions of the American Entomological Society* 75:133–270.
8. 1950. New species of *Pompilinus* (Hymenoptera: Pompilidae). *Journal of the Kansas Entomological Society* 23:84–89.
  9. 1951. A taxonomic study of the Nearctic spider wasps belonging to the tribe Pompilini (Hymenoptera: Pompilidae). Part II, Genus *Anoplius*. *Transactions of the American Entomological Society* 76:207–361.
  10. 1951. Subfamily Pompilinae, pp. 921–937. In: C. F. W. Muesebeck and K. V. Krombein, *Hymenoptera of America, North of Mexico: Synoptic Catalogue*. U.S.D.A. Monograph 2.
  11. 1951. A taxonomic study of the Nearctic spider wasps belonging to the tribe Pompilini (Hymenoptera: Pompilidae). Part III. *Transactions of the American Entomological Society* 77:203–340.
  12. 1952. A taxonomic and biological study of the spider wasps of Mexico belonging to the subfamily Pompilinae (Hymenoptera: Pompilidae). *Yearbook, American Philosophical Society* 1951, pp. 139–141.
  13. 1953. The Mexican species of *Allaporus* (Hymenoptera: Pompilidae). *Journal of the Kansas Entomological Society* 26:26–31.
  14. 1953. A biological study of *Anoplius apiculatus autumnalis* (Banks) and its parasite, *Evagetes mohave* (Banks) (Hymenoptera Pompilidae). *Journal of the New York Entomological Society* 61:61–78 (with C. S. Lin and C. M. Yoshimoto).
  15. 1953. Comparative ethology and the systematics of spider wasps. *Systematic Zoology* 2:155–172.
  16. 1954. Biological notes on *Psammaecius tricolor* (Cresson) (Hymenoptera: Sphecidae: Gorytini). *Entomological News* 65:6–11 (with C. S. Lin and C. M. Yoshimoto).
  17. 1954. The Mexican species of the genus *Pompilus* (Hymenoptera: Pompilidae). *Annals of the Entomological Society of America* 46:529–543.
  18. 1954. The genus *Psorthaspis* on the Mexican central plateau (Hymenoptera: Pompilidae). *American Museum Novitates* no. 1662:1–18.
  19. 1954. The male of *Tastiotenia festiva* (Hymenoptera: Pompilidae). *Pan-Pacific Entomologist* 30:103–104.
  20. 1954. A list of wasps collected in Florida, March 29 to April 5, 1953, with biological annotations (Hymenoptera: Aculeata). *Proceedings of the Entomological Society of Washington* 56:225–236 (with K. V. Krombein).
  21. 1955. The North American species of *Dissomphalus* (Hymenoptera: Bethyridae). *Proceedings of the Entomological Society of Washington* 56:288–309
  22. 1955. An annotated list of pompilid wasps taken at Blackjack Creek, Pottawatomie County, Kansas (Hymenoptera). *Journal of the Kansas Entomological Society* 28:16–19 (with C. M. Yoshimoto).
  23. 1955. *Philanthus sanbornii* Cresson as a predator on honeybees. *Bulletin of the Brooklyn Entomological Society* 50:47.
  24. 1955. An ethological study of the digger wasp *Bembecinus neglectus*, with a review of the ethology of the genus. *Behaviour* 7:287–303.
  25. 1955. An ethological study of *Anoplius (Pompilinus) fraternus* (Banks) (Hymenoptera: Pompilidae). *Bulletin of the Brooklyn Entomological Society* 50:77–84 (with K. V. Krombein and C. M. Yoshimoto).

26. 1955. A new *Aulocostethus* from Florida (Hymenoptera: Pompilidae). *Entomological News* 66:150–152.
27. 1955. An annotated list of wasps collected in Florida, March 20 to April 3, 1951. *Proceedings of the Entomological Society of Washington* 57:223–235 (with K. V. Krombein).
28. 1956. Studies on the larvae of digger wasps (Hymenoptera: Sphecidae). Part I: Sphecinae. *Transactions of the American Entomological Society* 81:131–153 (with C. S. Lin).
29. 1956. Synonymic notes on Nearctic Pompilinae (Hymenoptera: Pompilidae). *Entomological News* 67:5–10.
30. 1956. The subgenus *Pompilinus* in Mexico (Hymenoptera: Pompilidae). *Annals of the Entomological Society of America* 49:173–177.
31. 1956. Studies on the larvae of digger wasps (Hymenoptera, Sphecidae). Part II: Nyssoninae. *Transactions of the American Entomological Society* 82:35–66 (with C. S. Lin).
32. 1956. Notes on the biology of four species of ground-nesting Vespidae (Hymenoptera). *Proceedings of the Entomological Society of Washington* 58:265–270.
33. 1957. Notes on a *Stictia* new to the United States (Hymenoptera: Sphecidae: Bembicini). *Entomological News* 68:76–77.
34. 1957. Studies on the larvae of digger wasps (Hymenoptera: Sphecidae). Part III: Philanthinae, Trypoxyloninae, and Crabroninae. *Transactions of the American Entomological Society* 83:79–117.
35. \*1957. *Studies on the comparative ethology of digger wasps of the genus Bembix*. Cornell University Press; Ithaca, New York; 248 pp.
36. 1957. Three new California spider wasps (Hymenoptera: Pompilidae). *Pan-Pacific Entomologist* 33:181–186.
37. 1958. The North and Central American species of *Propriostocera* (Hymenoptera: Bethyliidae). *Proceedings of the Entomological Society of Washington* 59:286–296.
38. 1958. Studies on the nesting behavior of digger wasps of the tribe Sphecini. Part I: Genus *Priononyx* Dahlbom. *Annals of the Entomological Society of America* 51:177–186.
39. 1958. Some previously undescribed males and new sex associations in the Pompilinae (Hymenoptera: Pompilidae). *Entomological News* 69:147–153.
40. 1958. Ethological studies on digger wasps of the genus *Astata* (Hymenoptera, Sphecidae). *Journal of the New York Entomological Society* 65:159–185.
41. 1958. Studies on the larvae of digger wasps (Hymenoptera, Sphecidae). Part IV: Astatinae, Larrinae, and Pemphredoninae. *Transactions of the American Entomological Society* 84:109–139.
42. 1958. Observations on the nesting behavior of *Larropsis distincta* (Smith) (Hymenoptera, Sphecidae). *Entomological News* 69:197–200.
43. 1958. The evolution of social life in wasps. *Proceeding of the Xth International Congress of Entomology* 2:449–457.
44. 1959. A new *Allaporus* from southern Texas (Hymenoptera, Pompilidae). *Journal of the Kansas Entomological Society* 32:29–30.
45. 1959. The larvae of the Ampulicidae (Hymenoptera). *Entomological News* 70:57–61.
46. 1959. Some comments on the evolution of the Arthropoda. *Evolution* 13:148–149.
47. 1959. Prey records for some midwestern and southwestern spider wasps

- (Hymenoptera: Pompilidae). *Journal of the Kansas Entomological Society* 32:75–76.
48. 1959. The genus *Anisepyris* in the Greater Antilles (Hymenoptera, Bethyridae). *Bulletin of the Brooklyn Entomological Society* 54:69–75.
  49. 1959. The genus *Anisepyris* in America north of Mexico (Hymenoptera, Bethyridae). *Proceedings of the Entomological Society of Washington* 61:97–120.
  50. 1959. The larvae of Pompilidae (Hymenoptera). *Annals of the Entomological Society of America* 52:430–444.
  51. 1959. Biological observations on digger wasps of the genus *Philanthus* (Hymenoptera, Sphecidae). *Wasmann Journal of Biology* 17:115–132 (with C. S. Lin).
  52. 1959. Studies on the larvae of digger wasps (Hymenoptera, Sphecidae). Part V: Conclusion. *Transactions of the American Entomological Society* 85:137–191.
  53. 1959. Observations on the nesting behavior of digger wasps of the genus *Ammophila*. *American Midland Naturalist* 62:449–473.
  54. 1959. The Nearctic species of *Lophepyris*, a new subgenus of *Rhabdepyris* (Hymenoptera, Bethyridae). *Proceedings of the Entomological Society of Washington* 61:201–204.
  55. 1960. Notes on a sleeping aggregation of solitary bees and wasps. *Bulletin of the Southern California Academy of Science* 59:30–37 (with E. G. Linsley).
  56. 1960. Further studies on the subgenus *Xenopompilus*, including a first record of this group from the United States (Hymenoptera: Pompilidae). *Entomological News* 71:165–169.
  57. 1960. Observations on the nesting behavior of three species of the genus *Crabro* (Hymenoptera, Sphecidae). *Journal of the New York Entomological Society* 68:123–134.
  58. 1961. A study of *Bembix u-scripta*, a crepuscular digger wasp. *Psyche* 67:45–61.
  59. 1961. Notes on the distribution and biology of *Tastiotesia festiva* (Hymenoptera). *Southwest Naturalist* 6:51–52.
  60. 1961. A preliminary review of the Nearctic species of *Sierolomorpha* (Hymenoptera). *Breviora, Museum of Comparative Zoology*, no. 140:1–12.
  61. 1961. A reconsideration of the genus *Epipompilus* (Hymenoptera: Pompilidae). *Psyche* 68:25–37.
  62. 1961. Notes on the nesting behavior of *Plenoculus davisi* Fox (Hymenoptera, Sphecidae). *Entomological News* 72:225–228.
  63. 1961. A revision of the genus *Pseudisobrachium* in North and Central America (Hymenoptera, Bethyridae). *Bulletin of the Museum of Comparative Zoology* 126:211–318.
  64. 1962. The genus *Bethylus* in North America (Hymenoptera: Bethyridae). *Breviora, Museum of Comparative Zoology*, no. 150:1–12.
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  66. 1962. Further notes on the ethology of *Astata* (Hymenoptera, Sphecidae). *Journal of the New York Entomological Society* 70:30–32.
  67. 1962. A review of nesting behavior of digger wasps of the genus *Aphilanthops*, with special attention to the mechanics of prey carriage. *Behaviour* 19:239–260.
  68. 1962. Further studies on the genus *Dissomphalus* in the United States, Mexico, and

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69. 1962. Observations on the behavior of digger wasps of the genus *Stictiella* (Hymenoptera: Sphecidae) with a partition of the genus. *Annals of the Entomological Society of America* 55:559–566 (with J. E. Gillaspay and C. S. Lin).
  70. 1963. The evolution of prey-carrying mechanisms in wasps. *Evolution* 16:468–483.
  71. 1963. The genus *Epipompilus* in Australia. *Pacific Insects* 4:773–782.
  72. 1963. Predatory wasps. *Scientific American* 208:145–154.
  73. 1963. A new family of wasps. *Psyche* 70:7–16.
  74. 1963. A revision of the genus *Pristocera* in the Americas (Hymenoptera, Bethyliidae). *Bulletin of the Museum of Comparative Zoology* 129:241–290.
  75. 1963. Notes on some spider wasps of incorrect or ambiguous type locality (Hymenoptera: Pompilidae). *Proceedings of the Entomological Society of Washington* 65:108.
  76. 1963. A new species of *Cephalonomia* exhibiting an unusually complex polymorphism (Hymenoptera, Bethyliidae). *Psyche* 70:151–163.
  77. 1963. Notes on the prey and nesting behavior of some solitary wasps of Jackson Hole, Wyoming. *Entomological News* 74:233–239.
  78. 1963. A revision of the genus *Apenesia* in the Americas (Hymenoptera, Bethyliidae). *Bulletin of the Museum of Comparative Zoology* 130:251–359.
  79. 1964. Observations on the nesting behavior of *Moniaecera asperata* (Fox) (Hymenoptera, Sphecidae, Crabroninae) with comments on communal nesting in solitary wasps. *Insectes Sociaux* 11:71–78.
  80. 1964. Further studies on the larvae of digger wasps (Hymenoptera: Sphecidae). *Transactions of the American Entomological Society* 90:235–299.
  81. 1964. Notes on the prey and nesting behavior of some solitary wasps of Mexico and southwestern United States (Hymenoptera: Sphecidae and Pompilidae). *Journal of the Kansas Entomological Society* 37:302–307.
  82. 1964. Observations on the ethology of digger wasps of the genus *Steniolia* (Hymenoptera: Sphecidae: Bembicini). *American Midland Naturalist* 72:257–280 (with J. E. Gillaspay).
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  84. 1964. A synopsis of the American Bethyliidae (Hymenoptera, Aculeata). *Bulletin of the Museum of Comparative Zoology* 132:1–222.
  85. 1964. Notes on the nesting behavior of *Philanthus lepidus* Cresson (Hymenoptera, Sphecidae). *Psyche* 71:142–149.
  86. 1965. A revision of the genus *Rhabdepyris* in the Americas (Hymenoptera, Bethyliidae). *Bulletin of the Museum of Comparative Zoology* 133:69–151.
  87. 1965. Simultaneous care of more than one nest by *Ammophila azteca* Cameron (Hymenoptera, Sphecidae). *Psyche* 72:8–23.
  88. 1965. A description of the larva of *Methocha stygia* (Say), with notes on other Tiphidae (Hymenoptera). *Proceedings of the Entomological Society of Washington* 67:88–95.
  89. 1965. Studies on neotropical Pompilidae (Hymenoptera). I. The genus *Agenioideus* Ashmead in South America. *Breviora, Museum of Comparative Zoology*, no. 234:1–7.



90. 1966. The behavior patterns of solitary wasps. *Annual Review of Entomology* 11:123–154.
91. 1966. A revision of the Mexican and Central American spider wasps of the subfamily Pompilinae (Hymenoptera: Pompilidae). *Memoirs of the American Entomological Society*, no. 20:1–433.
92. 1966. The accessory burrows of digger wasps. *Science* 152:465–471.
93. 1966. Further studies on neotropical Epyrini (Hymenoptera, Bethyridae). *Psyche* 72:265–278.
94. 1966. Observations on the nesting behavior of some species of *Tachytes* (Hymenoptera: Sphecidae, Larrinae). *Journal of the Kansas Entomological Society* 39:323–332 (with F. E. Kurczewski).
95. \*1966. *The Comparative Ethology and Evolution of the Sand Wasps*. Harvard University Press; Cambridge, Massachusetts; 526 pp.
96. 1966. Studies on neotropical Pompilidae (Hymenoptera). Part II. Genus *Aridestus* Banks. *Psyche* 73:116–122.
97. 1966. Nests and prey of two species of *Philanthus* in Jackson Hole, Wyoming (Hymenoptera, Sphecidae). *Great Basin Naturalist* 26:35–40.
98. 1966. Further studies on neotropical Pristocerinae (Hymenoptera, Bethyridae). *Acta Hymenopterologica* 2:99–117.
99. 1966. Some unusual prey records for Pompilidae. *Proceedings of the Entomological Society of Washington* 68:339.
100. 1967. Notes on Mexican and southwestern U. S. Bethyridae (Hymenoptera): Part I, Pristocerinae. *Entomological News* 78:13–23.
101. 1967. A revision of the genus *Anisepyrus* Kieffer (Hym. Bethyridae). *Studia Entomologica* 8:1–120.
102. 1967. Notes on Mexican and southwestern U. S. Bethyridae (Hymenoptera): Part II, Epyrinae. *Entomological News* 78:93–100.
103. 1967. Discovery of the female *Plumarius* (Hymenoptera, Plumariidae). *Psyche* 73:229–237.
104. 1967. New generic records of Bethyridae from South America (Hymenoptera). *Proceedings of the Entomological Society of Washington* 69:269–272.
105. 1967. Studies on neotropical Pompilidae (Hymenoptera). III. Additional notes on *Epipompilus* Kohl. *Breviora, Museum of Comparative Zoology*, no. 273:1–15.
106. 1968. Mexican and Central American Pompilinae (Hymenoptera, Pompilidae): Supplementary notes, 1. *Entomological News* 79:158–167.
107. 1968. A suggested revision of nomenclatural procedure in animal taxonomy. *Systematic Zoology* 17:188–191 (with H. F. Howden and E. O. Wilson).
108. 1968. Studies on neotropical Pompilidae (Hymenoptera). IV. Examples of dual sex-limited mimicry in *Chirodamus*. *Psyche* 75:1–22.
109. 1968. The larva of *Microstigmus comes*, with comments on its relationship to other pemphredonine genera (Hymenoptera: Sphecidae). *Psyche* 75:132–134 (with R. W. Matthews).
110. 1968. North American *Bembix*, a revised key and suggested grouping. *Annals of the Entomological Society of America* 61:1284–1299 (with R. W. Matthews).
111. 1968. Notes on some digger wasps that prey upon leafhoppers. *Annals of the Entomological Society of America*, 61:1343–1344.
112. 1968. Mexican and Central American Pompilinae (Hymenoptera, Pompilidae): Supplementary notes, II. *Entomological News* 79:254–260.

113. 1968. The genus *Scleroderma* in South America (Hymenoptera, Bethylinidae). *Papeis Avulsos de Zoologia (S. Paulo)* 22:103–106.
114. 1969. The genera *Apenesia* and *Dissothphalus* in Argentina and Chile (Hymenoptera, Bethylinidae). *Breviora, Museum of Comparative Zoology*, no. 311:1–23.
115. 1969. Bredin-Archbold-Smithsonian Biological Survey of Dominica: Bethyloidea (Hymenoptera). *Smithsonian Contributions in Zoology* 3:1–14.
116. 1969. Phoretic copulation in Hymenoptera. *Entomological News* 80:113–124.
117. 1969. Notes on the nesting behavior of *Pisonopsis clypeata* and *Belomicrus forbesii* (Hymenoptera, Sphecidae). *Journal of the Kansas Entomological Society* 42:117–125.
118. 1969. A revision of the genus *Epyris* in the Americas (Hymenoptera: Bethylinidae). *Transactions of the American Entomological Society* 95:181–352.
119. 1969. Studies on neotropical Pompilidae (Hymenoptera): V. *Austrochares* Banks. *Psyche* 76:18–28.
120. 1969. Studies on neotropical Pompilidae (Hymenoptera): VI. *Dicranoplius* Haupt. *Studia Entomologica* 12:383–400.
121. 1969. Studies on neotropical Pompilidae (Hymenoptera): VII. *Irenangelus* Schulz. *Studia Entomologica* 12:417–431.
122. 1969. Three new Cretaceous aculeate wasps (Hymenoptera). *Psyche* 76:251–261.
123. 1970. West Indian wasps of the subfamily Pristocerinae (Hymenoptera: Bethylinidae). *Proceedings of the Entomological Society of Washington* 71:514–530.
124. 1970. West Indian wasps of the subfamilies Epyrinae and Bethylinae (Hymenoptera: Bethylinidae). *Proceedings of the Entomological Society of Washington* 72:340–356.
125. 1970. Notes on the nests and prey of Australian wasps of the genus *Cerceris* (Hymenoptera: Sphecidae). *Journal of the Australian Entomological Society* 9:153–156 (with R. W. Matthews).
126. \*1970. *The Wasps*. University of Michigan Press; Ann Arbor, Michigan; 265 pp (with M. J. West-Eberhard).
127. \*1970. *William Morton Wheeler, Biologist*. Harvard University Press; Cambridge, Massachusetts; 363 pp (with Mary Alice Evans).
128. 1970. Ecological-behavioral studies of the wasps of Jackson Hole, Wyoming. *Bulletin of the Museum of Comparative Zoology* 140:451–511.
129. 1970. The genus *Pseudisobrachium* in Argentina and Chile. *Acta Zoológica Lilloana* 25:43–66.
130. 1971. Notes on the prey and nests of some Australian Crabronini (Hymenoptera: Sphecidae). *Journal of the Australian Entomological Society* 10:1–4 (with R. W. Matthews).
131. 1971. A new genus of ant-mimicking spider wasps from Australia (Hymenoptera, Pompilidae). *Psyche* 77:303–307.
132. 1971. Biological notes on two species of *Sericophorus* from Australia (Hymenoptera: Sphecidae). *Psyche* 77:413–429 (with R. W. Matthews).
133. 1971. Nesting behaviour and larval stages of some Australian nyssonine sand wasps (Hymenoptera: Sphecidae). *Australian Journal of Zoology* 19:293–310 (with R. W. Matthews).
134. 1972. Observations on the nesting behavior of wasps of the tribe Cercerini. *Journal of the Kansas Entomological Society* 44:500–523.
135. 1972. The larva of *Heliocausus larroides* (Hymenoptera, Sphecidae). *Psyche* 78:166–168.
136. 1972. A review of the Australian species of *Elaphrosyron* and *Telostegus*, with notes

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137. 1972. Bredin-Archbold-Smithsonian Biological Survey of Dominica: Aculeate wasps (Hymenoptera: Scoliidea, Vespoidea, Pompiloidea, Sphecoidea). *Smithsonian Contributions in Zoology*, no. 115:1–19.
  138. 1972. Revision of the Australian and New Guinean species of *Epipompilus* (Hymenoptera). *Pacific Insects* 14:101–131.
  139. 1972. Nesting behavior and description of the larva of *Bothynostethus distinctus* Fox (Hymenoptera: Sphecidae). *Psyche* 79:88–103 (with F. E. Kurczewski).
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  141. 1972. The tribe Ctenoceratini in Australia (Hymenoptera: Pompilidae). *Journal of the Australian Entomological Society* 11:244–252.
  142. 1973. Observations on the nesting behavior of *Trachypus petiolatus* (Spinola) in Colombia and Argentina (Hymenoptera: Sphecidae: Philanthini). *Journal of the Kansas Entomological Society* 46:165–175 (with R. W. Matthews).
  143. 1973. Notes on the nesting behavior of *Steniolia elegans* Parker (Hymenoptera: Sphecidae). *Great Basin Naturalist* 33:29–30.
  144. 1973. Further studies on South American Bethylidae (Hymenoptera). *Proceedings of the Entomological Society of Washington* 75:194–204.
  145. 1973. Burrow sharing and nest transfer in the digger wasp *Philanthus gibbosus* (Fabricius). *Animal Behaviour* 21:302–308.
  146. 1973. Behavioural observations on some Australian spider wasps (Hymenoptera: Pompilidae). *Transactions of the Royal Entomological Society of London* 125:45–55 (with R. W. Matthews).
  147. 1973. Further studies on the wasps of Jackson Hole, Wyoming (Hymenoptera, Aculeata). *Great Basin Naturalist* 33:147–155.
  148. 1973. Systematics and nesting behavior of Australian *Bembix* sand wasps (Hymenoptera, Sphecidae). *Memoirs of the American Entomological Institute*, no. 20:1–387 (with R. W. Matthews).
  149. 1973. Cretaceous aculeate wasps from Taimyr, Siberia (Hymenoptera). *Psyche* 80:166–178.
  150. 1973. Studies on neotropical Pompilidae (Hymenoptera). IX. The genera of Auplopodini. *Psyche* 80:212–226.
  151. 1973. Notes on the nests of *Montezumia* (Hymenoptera, Eumenidae). *Entomological News* 84:285–290.
  152. 1974. Studies on neotropical Pompilidae, VIII. The genus *Aporus* in South America (Hymenoptera). *Studia Entomologica* 16:353–370.
  153. 1974. Observations on the nests and prey of *Sphodrotes nemoralis* sp. n. (Hymenoptera: Sphecidae). *Journal of the Australian Entomological Society* 12:311–314.
  154. 1974. Notes on the behavior of three species of *Microbembex* (Hymenoptera: Sphecidae) in South America. *Journal of the Georgia Entomological Society* 9:79–85 (with R. W. Matthews).
  155. 1974. A review of the species of *Dipogon* occurring in Central America, Mexico, and extreme southwestern United States (Hymenoptera, Pompilidae). *Transactions of the American Entomological Society* 100:29–51.
  156. 1974. Observations on the nesting behavior of South American sand wasps. *Biotropica* 6:130–134 (with R. W. Matthews).

157. 1974. Observations on the nesting behavior of *Rubrica surinamensis* (DeGeer) (Hymenoptera, Sphecidae). *Psyche* 81:334–352 (with R. W. Matthews and E. McC. Callan).
158. 1974. The larva of *Tachysphex plicosus* (Hymenoptera, Sphecidae). *Polskie Pismo Entomologiczne* 44:719–722.
159. 1975. The tribe Idopompilini in Australia (Hymenoptera: Pompilidae). *Journal of the Australian Entomological Society* 13:252–260.
160. 1975. A review of *Psoropempula*, a new genus of Australian Pompilidae (Hymenoptera). *Transactions of the Royal Entomological Society* 126:261–278.
161. 1975. Notes on the nests and prey of two species of ground-nesting Eumenidae from South America (Hymenoptera). *Entomological News* 85:149–153 (with R. W. Matthews).
162. 1975. Digger wasps as colonizers of new habitat (Hymenoptera: Aculeata). *Journal of the New York Entomological Society* 81:259–267.
163. 1975. The nest and larva of *Diploplectron brunneipes* (Cresson) (Hymenoptera: Sphecidae). *Great Basin Naturalist* 35:123–125.
164. 1975. The Comstock Heritage, pp. xvii–xxv. In D. Pimentel, Ed., *Insects, Science, and Society*. Academic Press; New York, New York.
165. 1975. Nesting behavior of *Philanthus albopilosus* with comparisons between two widely separated populations. *Annals of the Entomological Society of America* 68:888–892.
166. 1975. The sand wasps of Australia. *Scientific American* 233:108–115 (with R. W. Matthews).
167. 1976. Notes on the nests and prey of two subspecies of *Cerceris rufimana* Taschenberg (Hymenoptera: Sphecidae: Cercerini). *Journal of the Kansas Entomological Society* 49:126–132 (with R. W. Matthews, J. Alcock, and M. A. Fritz).
168. 1976. Nesting behavior of *Trichogorytes cockerelli* (Ashmead) (Hymenoptera, Sphecidae, Nyssoninae). *Entomological News* 87:33–37.
169. 1976. Nesting behavior of *Larropsis chilopsidis* and *L. vegeta* (Hymenoptera: Sphecidae: Larrinae). *Psyche* 82:275–282 (with D. T. Gwynne).
170. 1976. Nesting behavior of *Microbembex hirsuta* Parker, with notes on related species (Hymenoptera: Sphecidae). *Proceedings of the Entomological Society of Washington* 78:185–189.
171. 1976. Three new neotropical *Pterombrus* with description of the diapausing larva (Hymenoptera: Tiphidae). *Proceedings of the Entomological Society of Washington* 78:361–368 (with K. V. Krombein).
172. 1976. A new species of *Goniozus* imported into California from Ethiopia for the biological control of pink bollworm and some notes on the taxonomic status of *Parasierola* and *Goniozus* (Hymenoptera: Bethyridae). *Proceedings of the Entomological Society of Washington* 78:479–489 (with G. Gordh).
173. 1976. A revision of spider wasps of the genus *Ctenostegus* (Hymenoptera: Pompilidae). *Australian Journal of Zoology, Supplement Series*, no. 43:1–107.
174. 1977. Further studies on the North American species of *Pristocerea* (Hymenoptera: Bethyridae). *Entomological News* 88:57–60.
175. 1977. Bembicini of Baja California Sur: notes on nests, prey, and distribution (Hymenoptera: Sphecidae). *Pan-Pacific Entomologist* 52:314–320.
176. 1977. Notes on the nests and prey of four Australian species of *Tachysphex* Kohl, with description of a new species (Hymenoptera: Sphecidae). *Journal of the*

- Australian Entomological Society* 15:441–445 (with R. W. Matthews and W. Pulawski).
177. 1977. Notes on the nesting behavior and immature stages of two species of *Pterocheilus* (Hymenoptera: Eumenidae). *Journal of the Kansas Entomological Society* 50:329–334.
178. 1977. *Aphilanthops hispidus* as a predator on bees (Hymenoptera: Sphecidae). *Pan-Pacific Entomologist* 53:123.
179. 1977. Prey specificity in *Clypeadon* (Hymenoptera: Sphecidae). *Pan-Pacific Entomologist*, 53:144.
180. 1977. A further look at the genus *Prorops* (Hymenoptera, Bethylidae). *Journal of the New York Entomological Society* 85:50–54.
181. 1977. Extrinsic versus intrinsic factors in the evolution of insect sociality. *Bioscience* 27:613–617.
182. 1977. Studies on neotropical Pompilidae (Hymenoptera). X. Supplementary notes. *Psyche* 83:263–270.
183. 1977. A revision of the genus *Holepyris* in the Americas (Hymenoptera: Bethylidae). *Transactions of the American Entomological Society* 103:531–579.
184. 1978. New neotropical *Calyozina*, with a key to species (Hymenoptera, Bethylidae). *Entomological News* 89:61–62.
185. 1978. Alternative mating strategies in the digger wasp *Philanthus zebratus* Cresson. *Proceedings of the National Academy of Sciences (USA)* 75:1901–1903 (with K. M. O'Neill).
186. 1978. Observations on the nests and prey of eumenid wasps (Hymenoptera, Eumenidae). *Psyche* 83:255–259.
187. 1978. The Bethylidae of America north of Mexico. *Memoirs of the American Entomological Society*, no. 27:1–332.
188. 1978. Observations on the prey and nests of seven species of *Cerceris* (Hymenoptera: Sphecidae). *Great Basin Naturalist* 38:59–63 (with W. L. Rubink).
189. 1979. A solitary wasp that preys upon lacewings (Hymenoptera: Sphecidae: Neuroptera: Chrysopidae). *Psyche* 85:81–84.
190. 1979. The genus *Dissomphalus* in northwestern South America (Hymenoptera: Bethylidae). *Proceedings of the Entomological Society of Washington* 81:276–284.
191. 1979. A reconsideration of the genus *Bakeriella* (Hymenoptera: Bethylidae). *Journal of the New York Entomological Society* 87:256–266.
192. 1979. Additions to knowledge of the bethylid fauna of Hispaniola (Hymenoptera: Bethylidae). *Proceedings of the Entomological Society of Washington* 81:456–459.
193. 1979. Rediscovery of *Scolebythus madecassus*, with a description of the male and of the female sting apparatus (Hymenoptera: Scolebythidae). *Psyche* 86:45–51 (with C. Kugler and W. J. Brown, Jr.).
194. 1979. The *Platycephalus* group of the genus *Rhabdepyris* Kieffer (Hymenoptera: Bethylidae: Epyrinae). *Journal of the Australian Entomological Society* 18:377–381.
195. 1980. A new species of *Mystacagenia* from Panama (Hymenoptera, Pompilidae). *Pan-Pacific Entomologist* 56:185–186.
196. 1980. Swarming of *Leucorrhinia hudsonica* (Selys) (Odonata: Libellulidae). *Pan-Pacific Entomologist* 56:292 (with M. A. Evans).
197. 1980. Observations on the nesting behaviour of seven species of *Crabro* (Hymenoptera, Sphecidae). *Journal of Natural History* 14:865–882 (with F. E. Kurczewski and J. Alcock).

198. 1980. Notes on the nesting behavior of the bethylid wasp, *Epyris eriogoni* Kieffer, in southern Texas. *Psyche* 86:313–319 (with W. Rubink).
199. 1981. The genus *Microphadnus* Cameron in Australia (Hymenoptera: Pompilidae). *Entomological News* 92:81–83.
200. 1981. Insect societies: an independent experiment in group living, pp. 191–204. In H. Kellerman, Ed., *Group Cohesion*. Grune & Stratton; New York, New York (with K. M. O'Neill).
201. 1981. Predation on conspecific males by females of the beewolf *Philanthus basilaris* Cresson (Hymenoptera: Sphecidae). *Journal of the Kansas Entomological Society* 54:553–556 (with K. M. O'Neill).
202. 1981. Biosystematics of ground-nesting species of *Pison* in Australia (Hymenoptera: Sphecidae: Trypoxylini). *Proceedings of the Entomological Society of Washington* 83:421–427.
203. 1981. Notes on the nests and prey of six species of *Pison* in Australia (Hymenoptera: Sphecidae). *Psyche* 87:221–230 (with R. W. Matthews and A. Hook).
204. 1981. Observations on the prey and nests of some Australian spider wasps (Hymenoptera, Pompilidae). *Australian Entomological Magazine* 8:8–12 (with M. A. Evans and A. Hook).
205. 1982. The genus *Cerceris* in eastern Australia (Hymenoptera: Sphecidae). *Transactions of the American Entomological Society* 107:299–380.
206. 1982. The *anxius* group of the genus *Rhabdepyris* Kieffer (Hymenoptera: Bethyliidae: Epyrinae). *Journal of the Australian Entomological Society* 21:55–61.
207. 1982. Observations on the nests and prey of Australian *Bembix* sand wasps (Hymenoptera: Sphecidae). *Australian Journal of Zoology* 30:71–80 (with M. A. Evans and A. Hook).
208. 1982. Nesting behaviour of Australian wasps of the genus *Sphex* (Hymenoptera, Sphecidae). *Journal of Natural History* 16:219–225 (with A. Hook and R. W. Matthews).
209. 1982. Nesting and territorial behavior of *Philanthus barbatus* Smith (Hymenoptera: Sphecidae). *Journal of the Kansas Entomological Society* 55:571–576.
210. 1982. The “collaris” complex of Australian mimetic Pompilidae. *Pacific Insects* 24:151–155.
211. \*1982. *The Biology of Social Insects* (co-edited with M. D. Breed and C. D. Michener). Westview Press; Boulder, Colorado; 419 pp.
212. 1982. Communal nesting in Australian *Cerceris* digger wasps, pp. 159–163. In M. D. Breed, C. D. Michener, and H. E. Evans, eds., *The Biology of Social Insects*. Westview Press; Boulder, Colorado (with A. Hook).
213. 1982. Communal nesting in the digger wasp *Cerceris australis* (Hymenoptera: Sphecidae). *Australian Journal of Zoology* 30:557–568 (with A. Hook).
214. 1982. Two new species of Australian *Bembix* sand wasps, with notes on other species of the genus (Hymenoptera, Sphecidae). *Australian Entomological Magazine* 9:7–12.
215. 1983. Patterns of prey use in four sympatric species of *Philanthus*, with a review of prey selection in the genus. *Journal of Natural History* 16:791–801 (with K. M. O'Neill).
216. 1983. Observations on the nesting behaviour of three species of *Ropalidia* Guérin-Ménéville (Hymenoptera: Vespidae). *Journal of the Australian Entomological Society* 21:271–275 (with A. Hook).

217. 1983. Nests and prey of two little-known species of *Cerceris* (Hymenoptera: Sphecidae). *Entomological News* 94:45–46.
218. 1983. The larva of *Ammotomus icarioides* (Turner) (Hymenoptera: Sphecidae, Nyssoninae). *Pan-Pacific Entomologist* 59:52–54.
219. 1983. Body size and alternative mating tactics in the beewolf *Philanthus zebratus* (Hymenoptera, Sphecidae). *Biological Journal of the Linnean Society* 20:175–184 (with K. M. O'Neill).
220. \*1984. *Insect Biology. A Textbook of Entomology*. Addison-Wesley; New York, New York; 436 pp.
221. 1984. Alternative male mating tactics in *Bembecinus quinquespinosus* (Hymenoptera: Sphecidae): correlations with size and color variation. *Behavioral Ecology and Sociobiology* 14:39–46 (with K. M. O'Neill).
222. 1984. Nesting behaviour of a *Lyroda* predator (Hymenoptera: Sphecidae) on *Tridactylus* (Orthoptera: Tridactylidae). *Australian Entomological Magazine* 11:16–18 (with A. W. Hook).
223. 1984. A revision of spider wasps of the genus *Turneromyia* (Hymenoptera: Pompilidae). *Australian Journal of Zoology, Supplement Series*, no. 101:1–59.
224. 1985. Male territorial behavior in four species of the tribe Cercerini (Hymenoptera: Philanthinae). *Journal of the New York Entomological Society* 93:1033–1040 (with K. M. O'Neill).
225. 1986. Nesting site changes and nocturnal clustering in the sand wasp *Bembecinus quinquespinosus* (Hymenoptera: Sphecidae). *Journal of the Kansas Entomological Society* 59:280–286 (with K. M. O'Neill and R. P. O'Neill).
226. 1986. Nesting behavior of Australian *Cerceris* digger wasps, with special reference to nest reutilization and nest sharing (Hymenoptera, Sphecidae). *Sociobiology* 11:275–302 (with A. W. Hook).
227. 1986. Reproductive and nesting biology of *Bembecinus nanus strenuus* (Mickel) (Hymenoptera: Sphecidae). *Proceedings of the Entomological Society of Washington* 88:628–633 (with K. M. O'Neill).
228. 1986. Prey selection by Australian wasps of the genus *Cerceris* (Hymenoptera, Sphecidae). *Journal of Natural History* 20:1297–1307 (with A. W. Hook).
229. 1987. The genus *Dipogon* (Hymenoptera: Pompilidae) in the Rocky Mountains. *Entomological News* 98:41–45.
230. 1987. Order Hymenoptera, pp. 597–710, In F. Stehr, ed., *Immature Insects*, vol. 1. Kendall Hunt; Dubuque, Iowa (with D. A. Smith, W. W. Middlekauff, T. Finlayson, and R. J. McGinley).
231. 1987. A new species of *Irenangelus* from Costa Rica (Hymenoptera: Pompilidae: Ceropalinae). *Proceedings of the Entomological Society of Washington* 89:559–561.
232. 1987. Observations on the prey and nests of *Podalonia occidentalis* Murray (Hymenoptera: Sphecidae). *Pan-Pacific Entomologist* 63:130–134.
233. 1987. Observations on natural enemies of western spruce budworm (*Choristoneura occidentalis* Freeman) (Lepidoptera, Tortricidae) in the Rocky Mountain area. *Great Basin Naturalist* 47:319–321.
234. \*1988. *The Natural History and Behavior of North American Beewolves*. Cornell University Press; Ithaca, New York; 278 pp. (with K. M. O'Neill).
235. 1988. Correct names for species of *Tachysphex* observed by Evans (1970) at Jackson Hole, Wyoming, with new information on *T. alpestris* and *T. semirufus*

- (Hymenoptera: Sphecidae). *Proceedings of the Entomological Society of Washington* 88:720–721 (with F. E. Kurczewski).
236. 1988. Further studies on the systematics and nesting behavior of eastern Australian *Cerceris* wasps (Hymenoptera: Sphecidae). *Transactions of the American Entomological Society* 114:1–13.
237. 1988. Observations on swarms of *Rhamphomyia sociabilis* (Williston) (Diptera: Empididae). *Journal of the New York Entomological Society* 96:316–322.
238. 1989. The mating and predatory behavior of *Mellinus rufinodus* Cresson (Hymenoptera: Sphecidae). *Pan-Pacific Entomologist* 65:414–417.
239. 1989. Phenotypic correlates of mating success in the sand wasp *Bembecinus quinquespinosus* (Hymenoptera: Sphecidae). *Canadian Journal of Zoology* 67:2557–2568 (with K. M. O'Neill and R. P. O'Neill).
240. 1990. New Australian species and records of the *promontorii* group of the genus *Bembix* F. (Hymenoptera: Sphecidae: Nyssoninae). *Journal of the Australian Entomological Society* 29:27–30.
241. 1990. New distribution records of spider wasps (Hymenoptera, Pompilidae) from the Rocky Mountain states. *Great Basin Naturalist* 50:193–195.
242. 1991. Territorial behaviour in males of three North American species of bumblebees (Hymenoptera, Apidae, *Bombus*). *Canadian Journal of Zoology* 69:604–613 (with K. M. O'Neill and L. B. Bjostad).
243. 1991. Beewolves. *Scientific American* 265:70–76 (with K. M. O'Neill).
244. 1991. Prey and parasites of *Cerceris fumipennis* (Hymenoptera: Sphecidae) from central Texas, with description of the larva of *Dasymutilla scaevola* (Hymenoptera: Mutillidae). *Journal of the Kansas Entomological Society* 64:257–264 (with A. W. Hook).
245. 1992. The nests and prey of *Cerceris lutzi* Scullen (Hymenoptera: Sphecidae). *Journal of the Kansas Entomological Society* 65:91–92.
246. 1993. New records of Pompilidae from the southern Rocky Mountain states. *Sphecos* 24:15.
247. 1993. Two new *Microstigmus* species (Hymenoptera, Sphecidae), with description of their parasite, *Goniozus microstigmi* (Hymenoptera, Bethyilidae). *Proceedings of the Entomological Society of Washington* 95:258–263 (with G. A. R. Melo).
248. 1993. Terrestrial arthropod fauna of the alluvial fan resulting from the Lawn Lake Flood. *Science Monograph NPS/NRROMO/NRSM-93/21*, pp. 138–147.
249. 1993. Observations on aggregations of males of two species of beewolves (Hymenoptera: Sphecidae: *Philanthus*). *Psyche* 100:25–33.
250. 1993. Observations on the nests of *Paranthidium jugatorium perpictus* (Cockerell) (Hymenoptera: Megachilidae: Anthidiini). *Pan-Pacific Entomologist* 69:319–322.
251. 1995. A reconsideration of the *cylindricus* group of the genus *Anoplius* (Hymenoptera: Pompilidae). *Proceedings of the Entomological Society of Washington* 97:757–766.
252. 1996. Notes and descriptions of Nearctic *Ageniella* (Hymenoptera, Pompilidae). *Journal of the Kansas Entomological Society* 68:451–460.
253. 1996. Prey records and nest structure of six species of Astatinae and Philanthinae from Colorado (Hymenoptera: Sphecidae). *Memoirs of the Entomological Society of Washington* 17:68–71.
254. 1996. The evolution of nest building and communal nesting in Ageniellini (Insecta:



- Hymenoptera: Pompilidae). *Journal of Natural History* 30:1633–1648 (with A. Shimizu).
255. 1997. Report of a collection of Bethyridae (Hymenoptera) from central Florida. *Proceedings of the Entomological Society of Washington* 99:174–179 (with S. M. Fullerton).
256. 1997. Spider wasps of Colorado (Hymenoptera, Pompilidae): an annotated checklist. *Great Basin Naturalist* 57:189–197.
257. 1998. Further notes on the nesting behaviour of Ageniellini (Insecta: Hymenoptera: Pompilidae). *Journal of Natural History* 32:1411–1412 (with A. Shimizu).
258. 1999. Observations on the prey and nest clusters of *Podalonia valida* (Cresson) (Hymenoptera: Sphecidae). *Proceedings of the Entomological Society of Washington* 101:312–315 (with K. M. O'Neill).
259. 1999. Description of the larva of *Krombeinictus nordenae* Leclercq, p. 32. In K. V. Krombein, B. B. Norden, M. M. Rickson, and F. R. Rickson, Biodiversity of domatia occupants (ants, wasps, bees, and others) of the Sri Lankan myrmecophyte *Humboldtia laurifolia* Vahl. *Smithsonian Contributions to Zoology*, no. 603.
260. 2000. Three new species of *Dipogon* Fox (subgenus *Dipogon*) (Hymenoptera: Pompilidae) from central and western North America. *Proceedings of the Entomological Society of Washington* 102:1010–1013.
261. 2001. Notes on the distribution of *Epipompilus pulcherrimus* (Hymenoptera: Pompilidae). *Entomological News* 112:119–120 (with J. Wiley).
262. 2001. Observations on the biology of *Cerceris mimica* Cresson (Hymenoptera: Sphecidae: Philanthinae). *Journal of the Kansas Entomological Society* 73:220–224.
263. 2002. New records and range extension of species of *Dipogon* (Hymenoptera: Pompilidae) of Colorado. *Western North American Naturalist* 62:206–209 (with D. A. Leatherman).
264. 2002. A review of prey choice in bembicine sand wasps (Hymenoptera: Sphecidae). *Neotropical Entomology* 31:1–11.
265. 2002. A new species of *Cerceris* from southern Utah (Hymenoptera: Sphecidae: Philanthinae). *Journal of the New York Entomological Society* 110:91–94.

## Appendix 2. Popular Publications and Book Reviews

\*Asterisk indicates a book

- \*1951. *The Song I Sing*. Bruce Humphries; Boston, Massachusetts; 63 pp.
1959. A tale of ten thousand wasps. *National Parks Magazine* 33:6–7 (with M. A. Evans).
1959. *Isodontia*, the grass-carrying wasp. *Nature Magazine* 52:237–239.
1959. Adaptation of a sand wasp. *Natural History* 68:380–383.
1961. Mechanics of species survival. *Natural History* 70(8):46–51. (with F. A. McKittrick and T. Eisner).
1962. The geyser-loving digger wasps of Yellowstone. *The Explorer* 4(4):6–11.
1963. The clustering wasps—and why they cluster. *Audubon Magazine* 65:236–237.
- \*1963. *Wasp Farm*. Natural History Press, Doubleday; New York, New York; 188 pp. (1964. Published in England by G. G. Harrap; London; 1973. Reprinted by Doubleday Anchor Books; New York, New York; 1985. Reprinted in paperback by Cornell University Press; Ithaca, New York).

1965. The social register, a chapter from *Wasp Farm* (1963). In *Hal Borland's Our Natural World*. Doubleday; Garden City, New York; pp. 713–723.

1966. Will the human species stay ahead of the flies? Review of *The Natural History of Flies*, by Harold Oldroyd, and *A Catalog of the Diptera of America North of Mexico*, by Alan Stone and others. *Scientific American* 214:123–126.

1966. Ants, elephants, and men: strands from the fabric of natural history. *American Scientist* 54:101–118.

1966. The new salvation of man. Review of *On Aggression* by Konrad Lorenz, and *The Territorial Imperative* by Robert Ardrey. *Harper's Magazine* 233(1396):107–108.

1966. The intellectual and emotional world of the cockroach. *Harper's Magazine* 233(1399):50–55.

1966. Review of *Trap-nesting Wasps and Bees. Life Histories, Nests and Associates*, by Karl Krombein. 1957. *Smithsonian Publications* 4670, vi + 570 pp. *The Michigan Entomologist* 1:173–174.

\*1968. *Life on a Little-known Planet*. E. P. Dutton; New York, New York; 318 pp. (1970. Published in England by Andre Deutsch; London; 1970. Published in France as *La vie sur une planete mal connue* by Stock; Paris; 1972, 1994. Published in Japan by Hayakawa, Tokyo; 1969. Published in Germany as *Das Trillionen-Volk* by Gustav Lubbe; cologne; Published as paperbacks: 1970. by Dell, New York, New York; 1978. by Dutton, New York, New York; 1984. by University of Chicago Press; Chicago, Illinois; and 1993. by Lyons & Burford; New York, New York).

1968. The hunt of the wasps at Jackson Hole. *Natural History* 77:38–39.

1968. Pathfinding in animals. *The Curious Naturalist*, Massachusetts Audubon Society 7(10):1–3.

1970. *Review of The Lives of Wasps and Bees*, by Christopher Andrewes. Chatto & Windus, London, 1969, 204 pp., 16 plates. *Australian Natural History* 16(11):378.

1970. *An Entomology. Review of The Insects of Australia*. xii + 1029 pp. Sponsored by Division of Entomology, CSIRO, Canberra. Melbourne University Press. *Science* 170:722.

1972. *Personages. Review of American Entomologists*, by Arnold Mallis. Rutgers University Press, 1971. *Science* 175:162–163.

1973. A Study in Orange. *Insect World Digest*, January/February, pp. 8–13.

1973. Taxonomy—the cataloging and describing of living things—may help save the world. Illustrated by Fred Gwynne. *Smithsonian* 4(6):36–43.

1973. *Persistent insects. Review of The Mosquito. Its Life, Activities, and Impact on Human Affairs*, by J. D. Gillett, xx + 358 pp. + plates. Doubleday. *Science* 179:1121.

1974. *Vespoidea. Review of Wasps. An Account of the Biology and Natural History of Solitary and Social Wasps*, by J. P. Spradbery. University of Washington Press, xvi + 408 pp., illustrated. *Science* 183:192–193.

1974. *Entomology. Review of History of Entomology*, edited by R. F. Smith, T. E. Mittler, and C. N. Smith. Entomological Society of America and Annual Reviews, 518 pp., 1973. *Bioscience* 24(7):418–419.

1975. Social parasitism of a common yellowjacket. *Insect World Digest*, January/February, pp. 6–13.

1975. The Comstock heritage, pp. xvii–xxv. In D. Pimentel, ed., *Insects, Science and Society*. Proceedings of a symposium held at Cornell University, October 14–15, 1974. Academic Press, 284 pp.

1975. Howard, Leland Ossian, A biography, pp. 399–400. In: *Dictionary of American Biography*; Charles Scribner's Sons; New York, New York; Supplement 4.

1975. On waking to birdsong. In: *The Living Wilderness* 38(129):12–17.

1975. First on the wind. *Audubon* 77(5):48–63, illustrated by Stephen Dalton. (Reproduced as the foreword in *Borne on the Wind*, text and photographs by Stephen Dalton, John Kings, ed., Reader's Digest Press; New York, New York).

1975. The sand wasps of Australia. *Scientific American* 233(6):108–215 (with R. Matthews).

1976. Aerial locomotion. Review of *Insect Flight*, by R. C. Rainey, part of a symposium of the Royal Entomological Society of London. *Science* 194:612–613.

1977. Discovering life on earth. Initial probes suggest that conditions on this planet are nearly ideal for the support of life as we know it. *Sierra Club Bulletin* 62(1):24–25.

1977. *Review of Sphecid Wasps of the World, A Generic Revision*, by R. M. Bohart and A. S. Menke with collaborators. University of California Press, 696 pp. 1976. *Entomological Society of America Bulletin* 23(1):106.

1979. In defense of magic, reprinted from *Life on a Little-known Planet* (1968), pp. 104–119. In M. E. Bowen and J. Mazzeo, eds., *Writing About Science*. Oxford University Press; New York, New York.

1979. *The plight of the bumblebee*. Review of *Bumblebee Economics*, by Bernd Heinrich. Harvard University Press, 159 pp., illustrated. *Natural History* 88(9):116–119.

1980. Jumping spiders is their name. Jumping is their game, and lucky is the home that harbors them. *National Wildlife* 18:20–24 (with D. T. Gwynne).

1980. The evolution of social life in wasps. (From 1958. *Proceeding of the Xth International Congress of Entomology* 2:449–457; reprinted as pp. 137–148. In J. H. Hunt, ed., *Selected Readings in Sociobiology*. McGraw-Hill; New York, New York).

1980. Insect societies: an independent experiment in group living, pp. 191–204. In H. Kellerman, ed., *Group Cohesion*. Grune & Stratton; New York, New York.

\*1982. *Australia. A Natural History* (with Mary Alice Evans, junior author). Smithsonian Institution Press; Washington, D.C.; 267 pp.

1984. A tribute to spring's resurgence of life. *High Country News* 28:14.

1984. An adaptive stable strategy in Winterbottom's ground beetle. *The Journal of Irreproducible Results* 29(4):27–28.

\*1985. *The Pleasures of Entomology. Portraits of Insects and the People Who Study Them*. Smithsonian Institution Press; Washington, D.C.; 238 pp. (paperback).

1986. To the ant and beyond, with E. O. Wilson. *Orion* 5(3):46–55.

1986. Remembering pioneer naturalist. *Antaeus*, pp. 23–33. Also published as a hardback book called *On Nature*, D. Halpern, Ed. North Point Press (1987).

1986. A love of insects. A noted student traces the tradition of Cornell leadership in entomology. (From 1985. *The Pleasures of Entomology*. Reprinted in *Cornell Alumni News*, pp. 28–31).

1986. Wasps. *Colorado Outdoors*, November/December pp. 23–24 (with K. M. O'Neill).

1988. A remarkable bird—the magpie. *Colorado Outdoors*, January/February, pp. 16–17.

\*1991. *Cache la Poudre: The Natural History of a Rocky Mountain*. University Press of Colorado; Boulder, Colorado; 260 pp (with Mary Alice Evans).

1991. A meadow in the Rockies where the grass grows tall. *High Country News*, May, p. 14.

1991. A pile of rocks. *Orion* 10(2):63–64 (illustrated by A. Zwinger).

1991. Beewolves. *Scientific American* 265(2):70–76 (with K. M. O'Neill).

\*1993. *Pioneer Naturalists: The Description and Naming of North American Plants and Animals*. Henry Holt; New York, New York; 294 pp.

1993. Insects recaptured. Review of *The Treatise on Invertebrate Paleontology. Part R, Arthropoda 4, Vols. 3 & 4, Superclass Hexapoda*, by F. M. Carpenter, 1992. *Science* 259:1208.

1993. Review of Thomas Say: *New World Naturalist*, by Patricia Tyson Stroud. (1992). *Entomological News* 104:15.

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