

Biography of D. Elmo Hardy (1914-2002)¹

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Introduction

D. Elmo Hardy, “Elmo” to all who knew him personally, was one of the last polymaths in Diptera systematics. His knowledge of Diptera families spanned the order from Nematocera (specializing in Bibionidae), through to the Brachycera (specializing in the families Pipunculidae, Drosophilidae, and Tephritidae). He expanded his knowledge of the systematics to many other Diptera families through his monumental efforts in producing 5 volumes of Diptera for the “*Insects of Hawaii*” series where he described 581 species in no less than 20 families in the 30 years it took to conduct that research and produce those volumes. He coordinated the cataloging of the Diptera of the Oriental Region in the 1970s, the first and only comprehensive catalog from that region. He helped start the Hawaiian *Drosophila* project in 1963 which, with the help of numerous collaborators, increased the systematic and genetic knowledge of and stimulated world interest in a group of flies that exhibits one of the most explosive speciation and adaptive radiations of any animal on Earth—the genus *Drosophila* having upwards of 800 species known only from a tiny group of volcanic islands in the middle of the Pacific. In his almost 70 years of work on flies, he described 1,867 species in 34 different families of Diptera.

But his work in systematics was just a part of what Elmo did in the field of entomology and dipterology and is what was most publicized. What is not as well known were the workings — much like the Wizard of Oz — “behind the curtain” in his role as a professor at the University of Hawaii. In that capacity, he assisted numerous students, many from low-income backgrounds from Third World countries throughout the Pacific Rim area, in their education and their careers. Additionally, he was the answer-man for numerous public inquiries on “bugs” that came to the University. Some of these inquiries from housewives, farmers, nursery workers, and children, often led to unique discoveries of native and introduced invertebrates that otherwise might have gone unnoticed for many years.

Childhood and Schooling

Elmo (born Dilbert Elmo Hardy but preferred to keep the first name as an initial) was born in Lehi, Utah, the 3rd son of Horace Perham Hardy and Mary Ann Ivy (née Allred) Hardy. He had 3 brothers and 2 sisters. Home in Lehi was a small redbrick house near the center of town with two bedrooms, a kitchen, a living room, and a closed-in back porch, which was where they had their Saturday baths. The toilet was a privy in the backyard. His father owned the local candy store a few blocks away from home and Elmo had the run of the store, being allowed to eat as much chocolate and ice cream as he wanted. So much so that when he had his tonsils taken out at age 6, the doctor gave him — as doctors did with all kids getting their tonsils out — the traditional promise of having all the ice cream he could eat after the surgery. Although this was usually a dream-come-true for most kids, Elmo just sighed, “Big deal, I can get that all the time!”

Life at home was simple (no radio or telephones for diversions) and chores around the house helped Elmo learn about zoology at an early age. They kept cats as pets, and had chickens and goats. Whenever it was time to cook a chicken for a Sunday dinner, Elmo was asked to take care of the

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Figure 1. 1930 newspaper photo of the Miller's Boy's Band in Utah. Elmo is indicated by the square.

preparations for his mother including lopping off heads and plucking feathers. At age 10 he became interested in exploring the anatomy of the chicken before handing it off to his mother for cooking. Further interest in biology was stimulated by outdoor adventures with Elmo's Uncle, Charles Nostrom. Outings into the mountains west of Lehi would include gathering pine nuts and learning about bears, coyotes, foxes, beavers, etc.

The family was always interested in music and all Elmo's siblings played instruments. His sister Marjorie played the piano, his brother Horace played saxophone and clarinet, his brother Ken played clarinet, another sister Edith played the piano and trombone, his brother DeMour played trumpet, and Elmo played the trombone (Fig. 1). Elmo started playing at age 11 and played continuously until 1944, when a fall that damaged his teeth caused him to not be able to pucker up to the trombone mouthpiece any longer and he had to give it up. Elmo was an extremely talented trombone player and played in parades and bands with adults while still a child and even played in an Army band while stationed in India during World War II.

The family moved from Lehi to Tacoma, Washington when Elmo was 11 after his father quit the confectioner business and became a regional salesman for Utah Woolen Mills. Moving from a small provincial town to the "big city" was quite a shock for Elmo. This was really the first time he learned first-hand that there were people of different nationalities in the world and not everyone went to the LDS church. But it was there in Tacoma that he was taught biology by a teacher who was probably the one person responsible for pointing him in the direction of biology. She taught her students about the plants and animals of the area by bringing specimens into class and taking the class out to parks and Puget Sound and showing the students how and what to collect. She would explain how each plant or animal fit into the environment and further encouraged the students to read interesting books on natural history. An avid reader all his life, Elmo became fascinated by "*Waterton's Wanderings*", a multi-volume set of adventurous accounts of encounters with all sorts of animals from the Amazon Basin and the Orinoco in South America. Soon, Elmo was going out and collecting everything he could find, studying them, and taking them home. In no time his room was full of seashells, antlers, starfish, sand dollars, and other things that he could find near home.

After only a year in Tacoma, the family moved back to Utah after a relative died in an auto accident, but Elmo and his two brothers stayed in Tacoma a few more weeks to finish the school year. After school, his two older brothers went south to California by “riding the rails” and hoped to find work there, so Elmo was placed alone on the train back to Utah. It made quite a sight with a small 12-year old boy struggling with a large suitcase full of clothes, a trombone case, and 6-foot long moose antlers as he boarded the train back to Lehi.

A year after arriving back, the family moved a few miles south to Spanish Fork, Utah, where his father opened a lunch stand. It was at this time that Elmo became involved in taxidermy; it was a chapter in *Waterton's Wanderings* that also inspired this new adventure in Elmo's life. Elmo experimented with any animal he could get his hands on: birds of all kinds, squirrels, marmots, and deer and elk heads. One time his fervor got the best of him. He was busy preparing to stuff an owl, but apparently, the owl wasn't quite as dead as he thought and dug its claws into Elmo's chest. His sister Edith had to pry the owl off of a very surprised Elmo. Undaunted, Elmo continued to learn taxidermy through continued practice on several different animals. He became so proficient and well-known in the town as a taxidermist, that the mayor of Spanish Fork paid him to mount an elk head for his drug store, World Drug. It remained there for the next 60 years and still may be on the wall today.

Although no biology courses were taught in Spanish Fork, the fire had already been lit in Elmo and he was too busy collecting insects and other animals to notice. He used to arrange and classify his insect collections every afternoon at his father's lunch stand. Stacks of cigar boxes full of insects around the lunch stand soon caused the townspeople to talk and it was not long after that Elmo became known in the community as “that crazy Hardy kid”. Insects were not the only things he collected. By the time his older brother Horace moved out of his room, Elmo quickly turned it into a small “museum” filled with gallon after gallon of pickled snakes, reptiles, skins of all sorts of animals, rocks, mounted birds — anything he could drag in. A recent road-kill coyote was brought in late one night after tying it to the hood of the car and Elmo was anxious to find out what was in its stomach. The next morning he awoke to the whole house full of fleas from the coyote, but was further fascinated to find out that the stomach was full of grasshoppers.

University Years

After graduating from high school in 1931, Elmo played in bands in Montana and worked in a sugar factory there for a couple of years before entering Brigham Young University (BYU) in 1933. Vasco Tanner was then chairman of the entomology department and put him to work in the collection for his tuition. Elmo majored in entomology while minoring in German. Entomology was quite easy for Elmo since he had virtually memorized Comstock's “Introduction to Entomology” while still in high school. By the time he enrolled at BYU as a freshman, he was tutoring juniors and seniors in entomology. He graduated from BYU in 1937, but not before he married his first wife, Agnes Dale Thomas on 6 September 1935, her 20th birthday. While at BYU, Elmo published his first paper, on a new species of bibionid (*Biblio melanopilosus*) in 1936. He published one more paper while at BYU, in 1937.

After graduating, Elmo immediately got a job at Utah State University working on tomato insects. He enrolled in graduate school there and was awarded a research assistantship. But his trombone talent also helped pay the bills and Elmo continued to play in various bands while attending school. After one year at Utah State, he was awarded a teaching assistantship at the University of Kansas (KU). He and Agnes quickly loaded up their Model A Ford with their few belongings and headed across country to Lawrence, Kansas.

In the entomology department at KU (Fig. 2), Elmo majored in taxonomy and systematics and minored in medical and veterinary entomology, specializing in parasitology. The PhD program at KU was a busy one for Elmo and he had to give up his trombone playing during that time. He received \$50 per month for his teaching assistantship and the time he needed for teaching and prepa-



Figure 2. 1940 entomology class at the University of Kansas. Elmo is standing at the far right. Others identified in the photo include: Back row: Charles Shepard (3rd from left), Laurence Woodruff (8th from left), Reece Sailer (9th from left). Front row: Raymond H. Beamer (4th from left), Kathleen Doering (5th from left), Herbert B. Hungerford, Department Chair (6th from left), and Bob Guntert (9th from left).

ration unfortunately interfered with his required coursework. Some of the courses he needed to take were scheduled at the same time he needed to assist in the labs. But he and Agnes devised a solution. He made a deal with the professors teaching those courses that Agnes could sit in and take notes for Elmo. She did such a great job that Elmo ended up getting straight “A”s in all of his classes.

The years at KU were very productive for Elmo. He wrote 19 scientific papers including 2 large monographs (one of those two monographs was his Ph.D. thesis on Pipunculidae, which came to about 230 printed pages). The original thesis Elmo presented to the department (ca. 1,000 pages) was the largest thesis ever submitted to KU at that time. As always, Agnes did all of the typing. When he finally received his degree, the department chairman joked “We should be giving this degree to Agnes, since she did all the work.”

After receiving his PhD, Elmo took a short job in the Kansas State Entomologist’s Office as nursery inspector, then took a position with the U.S. Department of Agriculture for a few months as a field supervisor for the Chinch Bug Survey in the central states and the Pear *Psylla* Survey in the Pacific Northwest, the latter working mainly out of Spokane and Yakima, Washington. The government job was not to Elmo’s liking— “too much bureaucracy”— so he quit and went back to working at the Kansas State Entomologist’s office and as a post-doc at KU doing research on flies until he went into the Army in May 1942.

World War II

After being told the military needed medical entomologists and he could get a commission, Elmo entered the Army and was given a direct commission as a 1st lieutenant in the Sanitary Corps. He was called to active duty on 11 May 1942 and assigned to O’Reilly General Hospital in Springfield, Missouri. During his initial training he shared a lab with some future famous entomologists including Harry Hoogstraal, Stanley J. Carpenter, Frank N. Young, Louis Roth, and others (Fig. 3). After a month at Springfield, he received his first “permanent” assignment at Morrison Field, West Palm Beach, Florida, which was a staging area for the Air Force and medics being sent to Africa, the Middle East, India, Burma, and China. Most at Morrison had never seen a case of malaria or a tropical disease, so the Army decided to set up a training school and Elmo was selected to teach Medical Entomology. After three months of tropical disease training, they graduated their first class; and the Army sent them all to ... Alaska.



Figure 3. Medical entomologists in training at O'Reilly General Hospital in Springfield, Missouri, 1942. Some of those identified in the photo include Elmo Hardy (0), Harry Hoogstraal (12), Woodrow W. Middlekauf (7), Louis Roth (11), Frank N. Young, Jr. (8), and Stanley J. Carpenter (2).

After being promoted to captain a few months earlier, in March 1943 Elmo got his orders to go to Assam. He was to be in charge of Medical Entomology for the Air Force in the CBI (China-Burma-India) Theater. Flying to Chabua in Assam by Army transport was a two-week adventure that took him to Georgetown, British Guiana [now Guyana]; Recife, Brazil; Asunción Island, Atlantic Ocean; Accra, Ghana; Dakar, Senegal; Lagos, Nigeria; Kano, Nigeria; Madugeri, Chad (where he and his fellow travelers went exploring in the desert and were set upon by about a dozen wild looking natives on horseback galloping toward them with knives raised — it turned out that all they wanted to do was sell them souvenirs!); Khartoum, Sudan; Massaua, Eritrea; Aden, Yemen; Salala, Saudi Arabia; Karachi, Pakistan; Delhi, Patna, Jorhat, and finally Chabua, Assam, India (the last 1,000 miles flying at tree-top level to avoid cruising Japanese zeroes). The Air Force headquarters were in Delhi, a relatively safe haven from the war, and it was from there that Elmo's commanding officer, a man who craved excitement and action, decided to post the Sanitary Corps toward the front lines in Chabua, Assam, a mere 30–40 miles from the front.

While in Assam, Elmo was promoted to major and put in charge of control and prevention of insect diseases for all of CBI. He was in charge of approximately 250–300 personnel. After losing his malariologist colleague to a medical discharge, Elmo added malariologist to his duties. He spent the equivalent of several months studying whenever he could at the School of Tropical Medicine in Calcutta and became a frequent visitor there making many friends. His experience with tropical diseases and medical entomology in general helped him greatly in his eventual teaching duties at the University of Hawaii after the war; they were subjects he always was fond of teaching.

Chabua was the central supply for all the troops in the CBI and 30–40 flights left Chabua each day supplying the troops in the field as well as sending out rescue parties in search of downed fly-

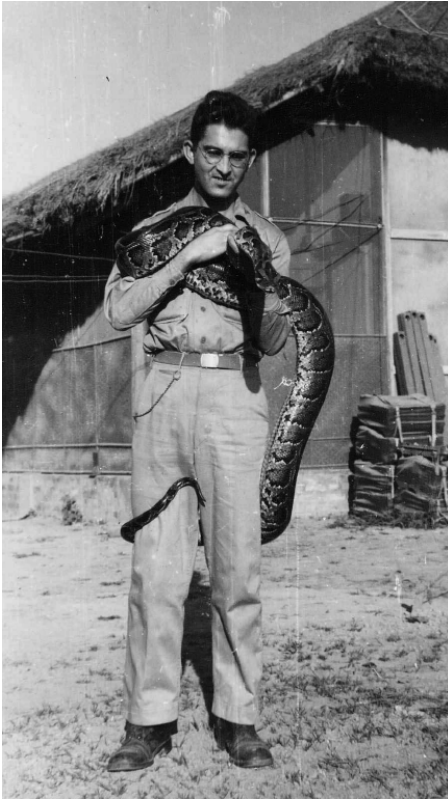


Figure 4. Major D. Elmo Hardy with “pet” python in Chabua, Assam, India.

ers. Soon after it became apparent that loss of the flight crews out of Chabua was heavy in that jungle terrain, a survival course was given to all personnel. The Sanitary Corps made sure that all parachute kits contained leech and mosquito repellent, nets, etc. Elmo had a pet gibbon and they soon learned from the gibbon which plants and insects were safe to eat for survival.

In addition to the gibbon, Elmo’s crew also collected snakes while in Assam, most eventually to be sent back to the National Zoo in Washington, D.C. One of his crew, Wesley Dickinson, was a zoo person and had extensive experience working with live snakes and taming them. They erected a building especially to house all the snakes that they collected and tamed. They had king cobras, vipers, pythons, rat snakes, etc. Elmo eventually sent back 800 pounds of live snakes to the National Zoo (Fig. 4).

All was not fun and games, however. His charge was to control and prevent diseases in Assam and eventually also in Calcutta, the new headquarters for the Air Force. Calcutta was the biggest challenge he faced during the war, but through his efforts, his crew was able to significantly reduce the incidence of disease and resulting deaths. In February 1944, his unit was awarded a Presidential Unit Citation and a combat ribbon and Elmo himself was awarded a Bronze Star for his efforts in disease control and prevention over India, Burma, and China.

University of Hawaii

Soon after the war, Elmo and his family moved to Ames, Iowa, where Elmo had accepted a job as Assistant Professor of Entomology at Iowa State University. He was hired by Carl Drake to teach medical and veterinary entomology and do research in Diptera taxonomy. After he arrived for work, he found out that their quarantine entomologist had left due to old age and they were looking for a replacement. Elmo was asked to step in temporarily as Assistant State Entomologist to conduct nursery inspections. He did so for the next three years with Wally Mitchell as his assistant. Wally and Elmo were soon best friends, a relationship that continued into their shared years teaching at the University of Hawaii.

In June 1948, Elmo was offered jobs at the University of Florida and the University of Hawaii. Extremely anxious to get away from the cold winters of Iowa, Elmo and his family decided to go to Hawai‘i and treat it as a “short vacation”, never thinking that it would be a permanent situation.

In October 1948, Elmo, Agnes, and their children (the youngest just born 6 weeks earlier) arrived in Honolulu (Fig. 5). Elmo was hired as an Assistant Professor and was promoted to full professor a few years later. Shortly after settling in Hawai‘i, Elmo began to travel to all the islands to collect and amass as much information and specimens as possible for the Diptera volumes of the *Insects of Hawaii* series. When Elmo arrived in Hawai‘i, only 197 species of flies were recorded. After publication of 5 volumes of the *Insects of Hawaii* devoted to Diptera (1960–1981), there were 1,209 species known.

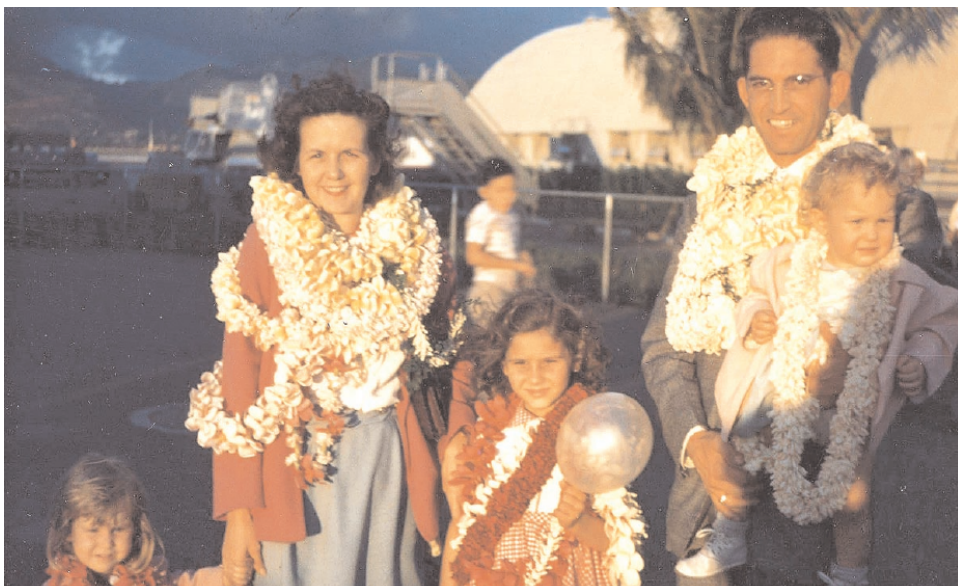


Figure 5. The Hardy family arrives at Honolulu International Airport in October 1948. Left to right: Joan, Agnes, Patricia, Elmo, and Cheryl [Dee (born 6 weeks earlier) not pictured].

Teaching and research occupied Elmo's working hours for the next few years and the Hardy home was open to all the students that cared to come by. The Hardys were wonderful hosts and took special pleasure in making their home available to everyone, especially the international students with whom it was a joy to see interact with other students from all over the world. There were no language, economic, or color barriers in the Hardy home and they made lifelong friends with all of the students.

In 1954, Elmo went on his first sabbatical, to study types of Hawaiian Diptera in European museums for his *Insects of Hawaii* series. The first 3 months were spent in London at the British Museum (Natural History) [now The Natural History Museum]. It was there that Elmo developed a quick way to describe flies. He used a Dictaphone rather than write descriptions long-hand (Elmo did not type). Agnes later transcribed the recordings and Elmo would edit the typed versions. Elmo continued to use this method throughout the rest of his career. He claimed he was able to get one year's worth of work done in London in just 3 months in this fashion. After London, Elmo's sabbatical took him to Ghent, Brussels, Amsterdam, Leiden, Paris, Rome, Padua, Florence, Milan, Berlin, Stuttgart, and Vienna.

Succeeding years saw Elmo traveling to Australia, New Guinea and Indonesia for fieldwork; to Europe on an NSF-sponsored sabbatical in Vienna in 1961 and another to Europe, India, Southeast Asia, and the Philippines in 1968–1969; and to congresses and other meetings in Beijing, Bogor, Bratislava, Brisbane, Budapest, Kuala Lumpur, Kyoto, London, etc.

The Hawaiian *Drosophila* Project

In 1963 Elmo embarked on a project that was to be one of the most prodigious and important for decades to come. After traveling throughout the Hawaiian Islands to survey and assess the Hawaiian Diptera fauna, it became apparent to Elmo that Hawai'i was exceptionally fertile ground for evolutionary studies and that one group of flies in particular had taken the opportunity to evolve into many species to the extreme. For 50 years, species in the family Drosophilidae (especially *Drosophila*

melanogaster) had been among the premier animals used the world over for genetics research because they have giant chromosomes that are easily studied and they are easily reared in laboratories. In Hawai'i, the species of the genus *Drosophila* have not only speciated tremendously (almost 400 endemic species — ca. one-third of the world's fauna), but include a significant number of species in which gigantism has occurred. The explosive evolution of these flies intrigued Elmo and he started giving seminars wherever he went extolling the virtues of Hawai'i as a "living laboratory of evolution". When Elmo gave a speech at the University of Texas, it did not take long for geneticist Wilson Stone to be convinced and he quickly worked with Elmo in writing a grant proposal to conduct work on what would become known as the Hawaiian *Drosophila* Project. The National Institutes of Health initially funded the program for about 5 years before the National Science Foundation helped with funding. The founding participants in the project included such luminaries as Hampton L. Carson, Marshall Wheeler, Frances E. Clayton, William B. Heed, Herman T. Speith, Harrison D. Stalker, and H. Lynn Throckmorton. Research began in June 1963 and further collaborators such as Michael Kambysellis, Elysse Craddock, Theodosius Dobzhansky, Francisca C. do Val, Jong Sik Yoon, Alan Templeton, and others took up the mantra.

In the succeeding decades, hundreds of new species were described and countless scientific papers published the results of research including behavior, genetics, ecology, larval biology, as well as the systematics of *Drosophila* and its closely related genera. Collaborators eventually counted into the dozens, visiting scientists numbered into the hundreds worldwide, and numerous graduate students became intimately involved and in some cases contributed seminal insights into the biology and evolution of these flies.

The project was one of the most successful biology projects ever funded in Hawai'i and continues to this day under the leadership of Ken Kaneshiro, who started with the Project in October 1963 as second year undergraduate student. Although it has increased our knowledge of the biology, systematics, and evolution of Hawaiian drosophilids, the Project will be forever known as the one that put Hawaiian evolutionary biology on the map and let the world know how unique and exciting the Hawaiian biota is. So much so that one preeminent biologist once said if Darwin had visited Hawai'i instead of the Galápagos, all the textbooks would be referring to examples of Hawaiian species radiations and not the Galápagos.

Other Diptera Research

Outside of Elmo's pioneering work with Hawaiian *Drosophila*, he was also a world's authority in 3 other fly families: Tephritidae, Pipunculidae, and Bibionidae. He contributed the results of his research on all 3 families throughout his career, but spent the last 20 years working almost exclusively on Tephritidae, including collaborative work with Dick Drew and Richard Foote.

Elmo's interest in Tephritidae was sparked during his first trip to London to study the types of Hawaiian Diptera. He laid the groundwork then for future studies by taking the opportunity to examine and try to make sense of the tephritid types of Francis Walker which, up till then, had not been systematically researched. It soon became apparent that one trip to London was not going to solve all the problems in tephritid taxonomy, so Elmo embarked on a lifelong task of revising many of the taxa in the family. In his 67 years of Diptera research, he published 48 papers on the systematics of Tephritidae and described 465 new species and 78 new genera (see Evenhuis & Thompson, this issue, for more details on the taxa described).

Elmo's early experience in economic entomology in Utah, Iowa, and the Pacific Northwest and his work on Tephritidae after his arrival in Hawai'i led to him traveling to Indonesia and Malaysia to attend conferences on Tephritidae and agricultural entomology. These meetings were not only beneficial in disseminating information on fruit fly taxonomy and agricultural impacts, but also led to him making lifelong friends and colleagues from these and neighboring countries. In addition, many of Elmo's foreign graduate students at the University of Hawaii ended up going back to their native countries and working in agricultural entomology and requested visits by Elmo to give lectures or help with research in those countries. He always obliged.

Table 1. Chronology of Events in the Life of D. Elmo Hardy

3 September 1914	Born, Lehi, Utah
June 1931	Graduates from High School
September 1933	Enters Brigham Young University, Provo
6 September 1935	Marries Agnes Dale Thomas
July 1936	First paper, first new species (<i>Bibio melanopilosus</i>)
June 1937	Graduates from BYU with B.A. degree
September 1937	Enters Utah State University, Logan
June 1938	Graduates Utah State University with an M.A. degree
September 1938	Enters Kansas University, Lawrence
June 1941	Graduates from Kansas University with PhD
11 May 1942	Enters US Army as 1st Lieutenant
22 March 1943	Leaves for Assam
5 October 1944	Returns home from India
December 1944	Stationed at Harlingen Air Force Base, Texas
October 1945	Released from Army; takes job at Iowa State University as Assistant Professor
June 1948	Offered job at University of Hawaii
June–July 1948	Visits USNM to do Diptera research before going to Hawai'i
October 1948	Arrives Hawai'i, Assistant Professor, University of Hawaii
April–November 1954	First Sabbatical to European museums
June–September 1957	Bishop Museum New Guinea Expedition
1958–1968	Chair of UH Department of Entomology
1960–1961	Second Sabbatical to European museums
1960–1981	<i>Insects of Hawaii</i> published (5 volumes)
June 1963	Starts Hawaii <i>Drosophila</i> Project
1968–1969	Sabbatical to European, Indian, SE Asian, and Philippines museums
1973–1977	<i>Catalog of Oriental Diptera</i> published (3 volumes)
January–September 1975	Sabbatical to Indonesia
December 1976	Entomology Society of America National Award for Outstanding Research
July–October 1979	Research trip to Indonesia/Australia
December 1980	Retires from University of Hawaii
June 1981	University of Hawaii Regent's Medal of Excellence in Research
29 October 1985	Agnes passes away
6 May 1988	Marries Ilse Hildegard Erdmann Riehl
February 1993	Hawaiian Entomological Society Award for Lifetime Excellence
24 June 1998	University of Hawaii Regent's Medal of Distinction
17 October 2002	Passed away, Honolulu, Hawai'i

Work on Pipunculidae began in 1939 with 3 papers on Nearctic species, then got serious with his doctoral dissertation, and continued for 50 years. In that time, Elmo described 346 new species and subspecies in the family (see Skevington & De Meyer, this issue, for more details on Elmo's impact on Pipunculidae systematics). Bibionidae was Elmo's first love in Diptera and resulted in his first 2 papers describing new species. And speaking of "love", Elmo is responsible for describing and naming the now-famous "love bug" of the southern United States (*Plecia nearctica*) — so named because swarms of them are often found *in copula*. Elmo described 305 new species and 3 new genera in Bibionidae. During his years of research on this family, Elmo amassed important synoptic collections of the world's genera and species of Pipunculidae and Bibionidae. In 1992, both of these collections were donated to the Bishop Museum, where they are currently preserved for the benefit of researchers worldwide.



Figure 6. Elmo and Ilse at the 1998 UH Regent's Medal ceremony.

Later Years

The 1980s were bittersweet for Elmo. In those 10 years, he retired from teaching, suffered the loss of Agnes to pancreatic cancer, and re-married in 1988.

After serving the University as professor and graduate advisor for 32 years and chairing its department from 1958 to 1968, Elmo finally retired from the University of Hawaii in December 1980. His Emeritus years were productive, but the luxury of space and time soon came to a crashing halt. In just a few short years after his retirement, his working space was reduced to a small 6 × 9 ft. office that had a desk with his dissecting scope on it and a few bookshelves (the laboratory was taken over by graduate students studying biological control under another professor). He eventually was forced to leave even his small office and was given a small space in the university's insect museum. This move was extremely depressing for Elmo, who had a huge library in the laboratory that needed to be dismantled because there was no room to move it anywhere else (space being precious in the Entomology Department). Elmo had acquired a great many volumes of old books on Diptera taxonomy during his decades

of research. He was especially fond of the many books he acquired from bookstores in India during World War II including a full set of the *Fauna of British India*. He also had a great many journals including some full runs that were otherwise not held by any library in Hawai'i. After some deliberation, he ended up splitting a donation between the University library and the Bishop Museum.

Suffering through Agnes's cancer and her eventual death was the biggest blow for Elmo. Family was extremely important to him and his whole life and even career revolved around the undying support of Agnes and her assistance in his many projects. She joined him on his sabbaticals to Europe and helped with his manuscript preparation. She always swam next to him on their morning ocean swims. Additionally, she, as well as their children, often joined him on his many collecting trips throughout the Hawaiian Islands. Her strength as a homemaker, being a loving mother to their children, and lifelong companion to Elmo, as well as her cheerfulness at being hostess to countless visitors would be sorely missed. His children were by now grown and had moved away. Elmo was alone for the first time in his life. His work suffered a downturn in productivity and the primary traveling that he did was to visit his children on the mainland and Agnes's grave in Spanish Fork, Utah.

But his loneliness was to be short lived. A family friend, Ilse Hildegard Erdmann Riehl, kept in close contact with Elmo soon after the death of Agnes. She and Agnes had worked together 20 years earlier. The two became very close friends and always stayed in touch. It was only natural then that Elmo turned to Ilse for companionship. The two got along very well and were married on 6 May 1988 in a ceremony in Virginia attended by many of Elmo's Diptera colleagues who worked in nearby Washington, D.C.

His marriage to Ilse renewed his energy and his work on Diptera soon got back on track again with gusto. With Agnes gone, graduate students or departmental secretarial staff did much of his typing chores. Every week, sometimes daily, he and Ilse did their morning ocean swim at Ala Moana Beach Park, then it was on to the University to check mail and finish up sometimes as many as a half a dozen different papers that were in various stages of completion.

This routine continued for a number of years. Then he had a major setback. Upon his return from the International Congress of Entomology in Beijing in 1992, Elmo suffered a stroke. The stroke paralyzed him on one side and severely restricted his speech. After swimming every day in the ocean as his rehabilitation, he improved quickly but was slow to get back into the normal routine. He always showed up for the quarterly Hawaiian Entomological Society meetings and his progress in walking and speaking became evident at each successive meeting. After a few years Elmo was pretty much back to normal. His routine may have been a little slower, but was always the same: swim in the mornings and then off to the University to check mail and work on manuscripts.

The year 1998 was to be a special one for Elmo. Through the coordination and efforts of a number of colleagues, Elmo and Elwood C. Zimmerman (“Zimmie”) received the University of Hawaii’s Board of Regent’s Medal of Distinction in honor of their contributions to the internationally renowned *Insects of Hawaii*, which was marking its 50th anniversary since Zimmie founded the series in 1948. A lavish ceremony (Fig. 6) in concert with a special symposium with paper presentations by numerous colleagues in their honor was followed by a special reception at College Hill, the historic Hawaiian home of the President of the University of Hawaii. Elmo was humbled by all the fuss and proceedings and refused to make a speech, saying he “had given up public speaking years ago”. However, the rare image of Elmo and Zimmie together for the first time is one that no one who was there that evening will ever forget.

Elmo was always humble yet had a certain strength of character and perseverance that got him through most of the difficult times in his life. However, that strength that he had in overcoming his personal losses and stroke were not enough to survive a broken hip that occurred after falling at home in September 2002. After seeming to be making a comeback in the hospital, he caught pneumonia and took a turn for the worst. He tried to battle it, but soon gave way to the inevitable and passed away on 17 October 2002.

Epilogue

With Elmo gone, we have lost much more than a well-respected Diptera systematist and teacher. We have lost a link to a previous generation of research that was more generalized and one that crossed many disciplines in order to be able to acquire and understand our environment and the way things work in biology. We have also lost a good friend. Probably more important to Elmo than his work was his family. And his “family” included more than his own kin. They were all the past and present students who studied under or came into contact with Elmo. They were his colleagues. They were his many friends. He was always eager to assist and took great pleasure and pride in seeing the successes of those whom he met, taught, and collaborated with over the years. We will miss him.

Acknowledgments

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