Fred Carl Harmston (1911-1995)

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Fred Carl Harmston, actually registered Carl Frederick Leon Harmston at birth, was born October 31, 1911, in Roosevelt, Utah, to Marion Eugene Harmston and Isabella Thurston Harmston. He was their fourth child, having two older brothers and an older sister, and was their only child born in Utah. The Harmston branch of the family tree traces its roots back to Lincolnshire, England, where a town bears their name. His father was born in Missouri in 1861 and died in Roosevelt, in 1922. His mother was born in Maine in 1869 and also died in Roosevelt, in 1937. Fred’s parents met in Hyannis, Nebraska, and were married November 27, 1897, in Wessington Springs, South Dakota, the first couple to be wed in the new Congregational Church.

Fred’s father was a pharmacist, and a graduate of the College of Optometry in Chicago, Illinois. He operated drug stores in Teluride Colorado, Weiser Idaho, White Lake and Wessington Springs in South Dakota, and finally in Roosevelt Utah. The family arrived in Roosevelt four years after it was settled. Marion was a good horticulturist, and surrounded the house with large orchards. Fred traces his interests in horticulture and entomology to his experiences watching his father working in the orchard and mixing chemicals to control pest insects. Marion became a victim of the influenza pandemic in 1922, when Fred was 11 years old, an event that visited great hardship on the family. Although Marion took in what should have been a comfortable income, they lost the property because of their inability to pay the taxes and their inability to collect on the credit his father had extended, because
of the depression.

The Thurstons had migrated west from Maine, settling in Grant County, Nebraska, where they purchased land in “The Sand Hills” and became ranchers. Fred’s mother, Isabella, graduated from Chadron Academy, in Chadron, Nebraska, to become a school teacher, and later, superintendent of schools for Grant County. After Marion’s death, she converted the drugstore into a hotel with three bedrooms upstairs, and three bedrooms plus a large dining room and kitchen downstairs. Fred recalled these as difficult times financially, with his mother making most of their clothes, even though prices were low (e.g. bib overalls - $.90, work shirts - $.75, enough steak for a family dinner - $.25).

Roosevelt was a primitive place during these early years. The streets were muddy trails, and the town boasted only three steam autos. Gasoline-driven cars arrived after WWI, but there were no service stations. Fred saw his first plane in 1920, when a small plane arrived over Roosevelt and flew around. There were neither electricity nor indoor plumbing, with outdoor privies meeting sanitation needs. Fred’s youthful free time was spent exploring his rural surroundings and fishing in the Uinta Mountains, activities that engendered in him the appreciation of nature that was to characterize his lifelong outlook.

During this period, alfalfa seed production was a leading agricultural activity in the Uintah Basin. Production had been good during the early years, but had
then begun to decline. Reduced yields or failure of the alfalfa seed crop were believed to result from activities of the false chinch bug (Nysius ericae (Shilling)), and several men from the Utah Forest Research Station came to town to see what could be done to improve the situation. The researchers lodged at the hotel, and as they sat around the lobby discussing various aspects of the problem, their conversations caught Fred’s attention. He dates his interests in insect control to these overheard conversations. Also, the fact that these men had good jobs when many had none, instilled in Fred an appreciation of the value of an education, and from that point, he determined to follow a similar path. It was largely the influence of Professor C. J. Sorenson, who had been among those staying at the hotel, that led Fred to enroll at the Utah State Agricultural College (USAC) in the fall of 1935. During his teen years, Fred worked at a number of jobs. He mixed mortar, carried hod, and worked in hayfields and orchards, earning $2/day for a very hard day’s work. He later hauled coal from Price to Roosevelt.

Beyond the limits of Roosevelt, there was a gulch where Fred collected insects with his homemade net. As cars became more numerous in the area, the gulch became the disposal site for dead autos, which were simply pushed over the edge. Showing great ingenuity, Fred and his friends managed to scavenge enough parts from these abandoned wrecks to build themselves a functioning vehicle!

In 1935, Fred set off for USAC (now Utah State University) where he was befriended by Dr. George F. Knowlton, State Entomologist, and Professor at USAC. Knowlton helped Fred get a job as an assistant in the entomology laboratory, collecting, sorting, pinning and labeling insects. He later recalled the many collecting trips with Knowlton as among “the most pleasant times of my life”. Knowlton also signed a note to cover his tuition. Fred joined the National Youth Administration, a program designed to assist young men to go to college; he made $.25/hr. In 1936 Fred worked in the Cache Valley on strawberry root aphid (Aphis forbesi Weed), strawberry root weevil (Otiorhynchus ovatus (Linneaus)) and strawberry leafroller (Ancylis comptana (Froelich)) control. For the summer of 1937, Fred was hired by the U. S. Bureau of Plant Quarantine to travel throughout Utah to meet with County Agents, and keep them supplied with
bait for the grasshopper-control program. Grasshoppers were superabundant, devouring everything, including fence posts and shovel handles! They were collected en masse in Iron County, Utah, for a role in the 1937 Academy Award winning movie, “The Good Earth”, by riders on horseback with large nets extended between them. While providing farmers with bran and sodium arsenate to be mixed for bait, Fred became well acquainted with all of the County Agents, and many farmers, and sometimes traveled where there were no established roads. One route took him through what is now Capitol Reef National Park. At the time, there was no road, but Fred and his Model T were undaunted. He became the first to drive through the steep-sided canyon, taking care before proceeding that there were no clouds in sight, since it was impossible to turn around if a storm came up. On one such trip, he climbed on top of his car, and wrote his name on the rocks. He and Jane revisited the site in 1980, and were thrilled to find it still there.

During this period, Dr. David G. Hall, a good friend of Knowlton’s from the United States National Museum, was in the area. When informed of Fred’s general interests, he pointed out that the authority for dolichopodids, Millard Carr Van Duzee (1860-1934), had died and this would be a good group for Fred’s attention. Fred now began collecting insects, especially Dolichopodidae, and did indeed find “these colorful flies a delightful subject of study”. However, the year 1937 also had its heartbreaks. His mother, to whom he had been very close, died of a massive heart attack.

In 1939, Fred married a classmate, Verna Hawley. They were soon transferred by the Bureau of Entomology to the Imperial Valley of California to survey for Egyptian alfalfa weevil (Hypera brunniennis Boheman). The weevil had been accidentally introduced on date palms, and it was feared that it would spread to alfalfa crops in the U. S. In 1941, they returned to Logan, where Fred completed a BS in Entomology. It had taken him six years because it had been necessary for him to be gainfully employed to support his family. His first son, George, was born; and they were transferred to Yakima, Washington, to study pear psylla (Cacopsylla pyricola Foerster). They spent one and a half years at this post.

With the outbreak of World War II, Fred returned to Salt Lake City to take the Civil Service examination for a position in the U. S. Public Health Service.
(USPHS). A group was being organized to control malaria around military establishments. Fred passed the examination, and after about six months in the Civil Service, was commissioned a 1st Lieutenant in the USPHS. At this time, Julian, their second son, was born. Fred was then transferred to Fort Pierce, Florida, for training in malaria and mosquito control. Seven months later, they were transferred to Indianapolis, Indiana, where they were responsible for malaria and mosquito control in Indiana, Kentucky and Mississippi.

A third son, Brian, was born in Indianapolis on January 14, 1944. However, Fred’s wife Verna contracted polio soon after, and suffered severe physical and mental problems as a result. Fred was able to work from home for six months, enabling him to care for his wife and three children. Fred’s brother Rogers and sister Helene traveled to Indianapolis from Salt Lake City, and took Verna and the children back with them. Verna was confined to an iron lung. Fred remained in Terre Haute, Indiana, for two to three months, then was transferred back to Salt Lake City to take charge of malaria control efforts around military establishments in Utah, Idaho and Colorado.

Fred’s duties took him to Bushnell Army Hospital, in Brigham City, Utah, where a secretary, Jane Trolson, took note of this man with a bug net! They were married January 16, 1946, in Elko, Nevada. Fred’s brother looked after the boys, while Fred and Jane took a train to Elko, were married and honeymooned for

Figure 6. Fred on horseback, grasshopper control, Dewey, Utah, June 1938.

Figure 7. Fred with deer, Logan, Utah, 1938.

Figure 7. Fred with deer, Logan, Utah, 1938.
three or four days. Jane returned to a readymade family of two, four, and five
year old boys. In 1946, Fred and Jane purchased, and moved into, the home that
they would hold onto for life. At this time, it was on the outskirts of Salt Lake
City, fronted by a dirt road along which sheep frequently made their way. Son,
John Carl, was born soon after, and daughter, Mary, in 1948.

After WWII, DDT was released for civilian use, and since it had proven so
effective in control of malaria mosquitoes, USPHS launched an extended malar-
ia control program whose aim was the eradication of malaria from North
America. Fred worked in this program for a number of years. Fred also became
involved in the rat control program for Utah, Colorado, Wyoming, Idaho and
Montana, whose goals were to promote rat-proofing ordinances and better laws
to control these pests. Some of the largest houses in Salt Lake City are now locat-
ed on the old dump where Fred and Jane went in the evenings to hunt rats with
a slingshot. Fred was an excellent shot, and made his own slingshots. A former
colleague, Bob Olson, in a September 1975 testimonial letter presented as part of
Fred’s retirement celebration wrote, “The first time we worked together on a
mosquito survey in southern Idaho in the middle ‘50s, you made a lasting
impression on me. I decided it was the better part of valor to agree with all the
recommendations of a man who could pick off beer bottles along the highway
with a slingshot while traveling 40 miles/hour”. Later, the family would visit this
dump on Sunday afternoons, setting up bottles and competing with slingshots for

Figure 8. Fred (left) with “Hopper Bait” crew, Parowan, Utah, 1938.
title of “best shot”. In 1960, Fred published a report summarizing his investigations of the Norway rat (*Rattus (Rattus) norvegicus* (Berkenhout)). At that time, much of the northern Rocky Mountain area was still free of this pest, and the report warned that control measures being used at the time (poisoning) were ineffective, and without new measures to eradicate existing populations and prevent their spread, this animal would become a destructive pest and serious menace to public health.

Throughout this time, Fred was also involved in the control of plague. Rodent burrows were treated weekly with insecticide, and to monitor the effectiveness of their efforts, they would trap rodents, comb out the fleas, and ship them in vials to San Francisco for analysis. While awaiting shipment, the fleas resided in the family refrigerator! In February 1952, Fred was transferred to St. Louis, Missouri, where there had been an outbreak of St. Louis Encephalitis (SLE) the preceding year. At this time, the vector was not known with certainty. However, unlike Eastern Equine Encephalitis (EEE) and Western Equine

![Figure 9. Capitol Wash, Utah, 1938.](image1)

![Figure 10. Fred on grasshopper survey, New Harmony, Utah, 1939.](image2)
Encephalitis (WEE), humans appeared to be the only vertebrates affected. There were several hundred cases of SLE and many deaths. The USPHS team determined that the principal vector was *Culex quinquefasciatus* Say, which bred in quarries and the numerous highly polluted catch basins. In the Sunday, June 7, 1953 issue of the *St. Louis Post-Dispatch*, in a full double-page article entitled “Mosquito Control”, Fred was quoted as saying “it is a hopeless task to try to control mosquitoes adequately unless there is an overall integrated district program”.

In July 1952, Fred and family were moved to Lubbock, Texas, where WEE was becoming a problem as a result of the greatly increased use of deep-well irrigation and the resulting increase in surface water. The vector was *Culex tarsalis* Coquillett. In connection with this research, Fred traveled throughout west Texas. In June 1953, the Harmstons were transferred to Plainview, Texas, where work on WEE continued. In December of that year, as Jane was completing the decorating of their Christmas tree, Fred arrived home to inform her that they were moving again! Her dismay was short lived when she learned that this move
was back to Logan, Utah …. home! The Logan assignment was to focus on water resources and the insect problems associated with irrigation and the construction of reservoirs. At this time, the Logan USPHS consisted of 15-20 men, plus secretaries. The Harmstons were soon joined in Logan by George Schultz and family, best friends from Plainview. In Logan, Fred met Louis J. Ogden, who was to become his closest friend. In 1957, daughter Katherine was born in Logan. Another highlight of the Logan years was Fred’s purchase of a Model A, which became the usual means of traveling to work for Fred and his two friends, Schultz and Ogden.

In the summer of 1958, the move was to Greeley, Colorado, where the USPHS unit was set up in an old, two-story house in Island Grove Park. This was a large group, whose focus was the study of vector-borne diseases, including encephalitis, plague, Colorado Tick Fever, Rocky Mountain Spotted Fever and tularemia. The work entailed much travel throughout the U. S., but especially in the western states. During the Greeley years, Fred attended Colorado State University (CSU), Fort Collins, and in 1963 was awarded a Master’s degree in Entomology, writing his thesis on “Mosquitoes of Colorado”. In 1967, Fred was transferred to Fort Collins, where USPHS had constructed a large complex on the West Campus of CSU. This was also the year that Hurricane Beulah hit west

Figure 12. Left to right, Dorst, Stains, Fred, Thornily, Knowlton, Hardy and Nye, September 12, 1940.
Texas, creating concerns about the possibilities of an encephalitis outbreak. Their furniture was still on the truck when Fred received orders to go to Texas. He was gone about six weeks, spraying to control the mosquito vectors.

During the Colorado years, Fred worked with Dr. William (Bill) F. Rapp, Jr., a Nebraska State Sanitarian. From this collaboration emerged two papers on the dolichopodids of Nebraska. In 1973, Fred attended the Boy Scout Jamboree in Sand Point, Idaho, where he was assigned the duty of organizing and conducting insect control. This was an extremely dry year, very favorable for yellow jackets, which found the showers an ideal spot to collect water. In spite of his best efforts, spraying and fogging with Dursban, many scouts were stung.

Fred was an avid horseshoe player, and got great satisfaction from playing against, and sometimes beating, his friend Louis Ogden. On September 1, 1975, both Fred and long-time friend, Louis Ogden retired. Fred had been with USPHS for 32 years in the Commissioned Corps, and retired with the rank of Navy Captain. This was in addition to the seven years he had worked in other Civil
Service positions.

Perhaps the best insight into how this man was able to accomplish so much can be gained from his description of his feelings towards his job. He found his work so gratifying and pleasant, and loved it so much, that it never seemed like work! He looked forward to every workday, as one would a hobby! In fact, Fred’s extensive work on dolichopodids was a hobby, done entirely in his spare time. Fred had a microscope at home, and spent every spare moment looking through it. He rarely made it to bed before midnight.

On August 4, 1976, the Harmstons returned to the house in Salt Lake City in which they had started their married life. Fred’s brother, Rogers, who had been living in the house, had died in 1975. The next 15 years were filled with the things that gave them both pleasure: camping, gardening, travel, photography, and of course, collecting dolichopodids. Their travels took them to Australia, New Zealand, Tahiti, China, Europe, Canada, and every state in the U. S. From 1990, Fred’s health began to deteriorate. He was frequently hospitalized, with pneumonia and with a series of small strokes. On June 27, 1995, after taking a nap, he collapsed on the kitchen floor and broke a hip. He spent three months in the hospital, much of it in ICU. In early October, he was moved to a rehabilitation center, and died October 13, 1995, at the age of 83.

Fred is remembered as a wonderful husband, father and grandfather. He was an ardent supporter of education, and all of their children graduated from college, and continued for higher degrees. He seldom went anywhere without his net, cyanide tube, dipper, and vials for storing the catch. Jane’s fondest memories are of sitting on a rock in the river, watching Fred collect. Fred always hoped that one of his sons or grandsons, would follow him in collecting, but that was not to be.

Fred was a calm, reserved individual, very dedicated to anything that captured his interest. No partial efforts for him! He gave generously of time and specimens, identifying dolichopodids for institutions throughout the country, and donating specimens to augment their collections. His large, green, typed labels
are to be found in all of the major, and many of the minor, collections of North America. He was an outstanding collector, and a professional and helpful colleague.

Prior to his death, Fred oversaw the sorting and shipping (by Jane) of his extensive collection that was passed on to institutions where it would be available for continuing study. The major parts went to Utah State University, Logan, Utah, and to the Florida State Collection of Arthropods, Gainesville, Florida. Material also was donated to the California Academy of Sciences, San Francisco, California, including the genus *Medetera* (Medeterinae). The Hydrophorinae and *Pelastoneurus* (Dolichopodinae) were donated to Richard L. Hurley, then at Humboldt State University, Arcata, California, and accompanied him to Montana State University, Bozeman, Montana. Fred Harmston donated over 11,700 insect specimens to the California Academy of Sciences, recorded in 21 accessions, between August 25, 1940 and October 10, 1995. Over 10,500 of these are Dolichopodidae, over 750 Culicidae, and the remaining, miscellaneous Diptera and Hymenoptera. The largest of these donations was the last with 8,394 specimens, of which 8,356 are Dolichopodidae, with 6,804 pinned and 1,552 specimens mounted on 1,112 microscope slides. All of the pinned specimens of this last donation are labeled with a Fred Harmston collection label, and when iden-
tified, also with a determination label as identified by Fred Harmston. These labels were applied by volunteer Madeline M. Arnaud from labels composed by PHA.

Some patronyms named in Harmston’s honor include: *Pipunculus harmstoni* Hardy and Knowlton, 1939 (Diptera: Pipunculidae); *Fimbriaphis harmstoni* Knowlton, 1943 (Homoptera: Aphididae); *Rhyacophila harmstoni* Ross, 1944 (Trichoptera: Rhyacophilidae); *Gonomyia harmstoni* Alexander, 1948 (Diptera: Tipulidae); *Harmstonia* Robinson, 1985 (Diptera: Dolichopodidae); *Hydrophorus harmstoni* Hurley 1985 (Diptera: Dolichopodidae); *Chrysotus harmstoni* Meuffels and Grootaert, 1999 (new name for *C. nudus*) (Diptera: Dolichopodidae); and *Tachytrechus harmstoni* Meuffels and Grootaert, 1999.
(new name for *T. californicus*) (Diptera: Dolichopodidae).

In his “History of Nearctic Dipterology”, Alan Stone includes Fred Harmston in the biographical sketches and statements of the achievements of the 54 authors who have each proposed more than 100 names for Nearctic Diptera (1980:55-56, *Flies of the Nearctic Region, 1*(1):1-62; edited by Graham C. D. Griffiths).

ACKNOWLEDGMENTS

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Figure 18. LaVerne Miller, collecting in Jordan Valley, Oregon, June 1963.
historical significance on Fred Harmston to the Archives of the California Academy of Sciences.

**BIBLIOGRAPHY OF FRED CARL HARMSTON**

1937


1938


1939


11.—1939g.—A new Scellus (Dolichopodidae: Diptera) with key to males. *Proceedings of the Utah Academy of Sciences, Arts and Letters*, 16:71-73, figures 1-6. [F. C. Harmston]. [Scellus knowltoni, new species].


1940


Figure 21. “Fred earning his salary the hard way with a little fun thrown in. Note flipper in his hand. When deadeye shoots its the end for this rat at the Denver City-County Dump, in Denver”, Colorado, “1968.”
[Tachytrechus tahoensis and T. utahensis, new species].


Figure 22. Fred (sitting) with Louis J. Ogden, water resource experts, 1972.
1941


1942


30.—1942e.—Insect food of the Sage Thrasher. The Condor, 44(2):76-77. [by G. F. Knowlton and F. C. Harmston].


1943


Figure 24. Fred teaching grandson John the art of pinning insects, New York, 1975.
1944


1945


[Dolichopus michiganus, Hercostomus dreisbachi, D. flutatus and Neurigona sombrea, new species].

1946


[Paraclius indianus and P. utahensis, new species].


1947


1949


1950


1951


50.—1951c.—The rat problem in Utah. *State Department of Health, Salt Lake City, Utah*, pp. 1-10, figures 1-5, [by F. C. Harmston].


1952


1953


1955


1956


1958


1960


1961


1962

61.—1962a.—Mosquito production in stabilization ponds. Journal Water Pollution

1963


1964


1965

66.—1965a.—Notes on mosquitoes (Culicinae) of northwestern Nebraska.

Figure 29. Harmston family, front row left to right, Fred, June, Mary, and Katherine, back row left to right, John, Brian, George and Julian.

1966


1967


1968


1969

1970


1971


1972


1973


1975

86.—1975a.—Mosquito problems associated with the Bureau of Reclamation proposed Narrows Unit, South Platte Division, Missouri River Basin Project, Colorado. *Proceedings of Sixty-second Annual Meeting New Jersey Mosquito Extermination Association*, pp. 58-73, 1 unnumbered figure, 5 tables. [by L. J. Ogden and F. C. Harmston].
1983


**LIST OF NEW TAXA PUBLISHED 1939-1972**

Names are listed alphabetically by species. Each name is followed by its author(s), the year of publication, and a literature citation. The following additional information is given: Holotype (designated by “H”) and its sex, followed in parentheses by the acronym of the collection in which the holotype was deposited [if location of type has changed, the acronym of the current location of the holotype is given in brackets], data as to locality, date of collection, and name of collector(s); Allotype (designated by “A”) and its sex; Paratype(s) (designated by “P”) and the number of specimens of each sex. In one instance, with the description of *Aphrosylus californicus* Harmston, the series of specimens are considered Syntypes (designated by “S”), *contra* Pollet et al. Finally, the current status (designated by “CS”), is given. The current status concurs with the assignment of names in the recent valued publication “Catalog of the Dolichopodidae (Diptera) of America North of Mexico” by Pollet, Brooks and Cumming (Bulletin of the American Museum of Natural History, 283:1-114, 2004). In most cases, the allotype is deposited together with the holotype, but not necessarily so, and paratypes are often deposited in more than one collection. These depositories are not indicated in our list, but the distribution of these may be found in the original descriptions. Lists of the acronyms of type depositories and the complete title of journals are:


**ACRONYMS FOR TYPE DEPOSITORIES OF HOLOTYPES:** CAS—California Academy of Sciences, San Francisco; CNC—Canadian National Collection, Ottawa; CSU—Colorado State University, Ft. Collins; FSCA—Florida State Collection of Arthropods, Gainesville; ILNHS—Illinois Naturally History Survey, Champaign; UAES—Utah Agricultural Experiment Station, Logan; SDSU—South Dakota State University, Brookings; UCB—University of
California, Berkeley; **UCD**—University of California, Davis; **UKC**—University of Kansas, Lawrence; **UMNH**—Utah Museum of Natural History, Salt Lake City; **USC**—Universidad de Chile, Santiago; **USNM**—National Museum of Natural History, Washington, D.C., [formerly United States National Museum].

One hundred sixty-two names are listed, of which 160 are for new species and two are new names for preoccupied species. The holotype depositories for the 160 new taxa consist of nine institutions, seven in the United States and one each in Canada and Chile. The holotypes are distributed as follows: 95 holotypes deposited in the National Museum of Natural History [formerly United States National Museum], Washington, D.C.; 38 deposited in the California Academy of Sciences, San Francisco; 11 deposited in the University of Kansas, Lawrence; 4 deposited in the Canadian National Collection, Ottawa; 4 deposited in the Florida State Collection of Arthropods, Gainesville; 3 deposited in the University of California, Davis; 2 deposited in the Illinois Natural History Survey, Champaign; 2 deposited in the Universidad de Chile, Sede Oriente, Santiago; and 1 deposited in the Utah Museum of Natural History, Salt Lake City.


jamesi, Peloroepodes, Harmston and Knowlton 1939 EN 50(9):257-258, figs. 3-4. H male (USNM), USA: Utah: Blue Creek, R. R. Station, 30 Mar. 1939, (H. E. Dorst, M. W.


females. CS: Same.


gonensis (Harmston and Miller).


la Harmston.


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