Principes, 40(1), 1996, pp. 31–35

Miriam L. Bomhard's Contributions to the Study of Palms

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Geographic happenstance can influence the specialty of a botanist, and Miriam Bomhard represents one such example. Born in Bellevue, Kentucky, 24 July 1898, her family moved to the Pittsburgh area in 1907. Bomhard graduated from Sharpsburgh, PA, High School in 1917 and won an honor scholarship to the University of Pittsburgh. She graduated with a B.S. degree cum laude in February 1921 and received her M.A. just four months later in June 1921. Continuing her studies at the same university, she was awarded a doctoral degree in biology in 1926, the first woman to receive a Ph.D. from the University of Pittsburgh. Her doctoral dissertation dealt with the taxonomy of seeds of selected plant groups in western Pennsylvania (1926a); a summary of the results were published the same year (1926b). That she became a palm specialist is directly attributable to her taking a teaching position in New Orleans.

The purpose of this article is to document the contributions Miriam Bomhard made to the study of palms, as well as her research on forage range species in the United States. Dr. Bomhard died of cancer 16 December 1952 in Glenshaw, PA. Information for this article was gathered from a detailed obituary by W. A. Dayton (1953), supplemented with documentation at the Bailey Hortorium, Cornell University, Ithaca, NY, which has an uncatalogued collection of Bomhard's professional papers, photographs and field notebooks dealing with palms; the National Agricultural Library, Beltsville, MD; Hunt Institute for Botanical Documentation, Carnegie Mellon University, Pittsburgh, PA; the American Association for the Advancement of Science, Washington, D.C.; and Tulane University, New Orleans, LA.

A photograph (Fig. 1), likely dating to the 1930s, shows Miriam Bomhard pursuing her palm research in Audubon Park, New Orleans and in a formal portrait photograph (Fig. 2) probably from the 1940s.

New Orleans 1926–1932

Dr. Bomhard joined the faculty of Newcomb College, Tulane University in the fall of 1926 as an instructor in zoology. The following year her title was changed to instructor in biology and in late 1927 she was advanced in rank to assistant professor of biology. In addition to teaching zoology and botany, and reclassifying the herbarium, she began field work on the native and introduced palms of Louisiana, and on local vegetation in general. Research on palms was, at the start, logistically easy. There were a number of palm species growing on the Tulane campus, and Bomhard lived just a block away from Audubon Park, which had many convenient specimens for study.

To learn more about the diversity of palms growing within the United States, Bomhard took a driving trip to southern Florida to study and photograph palms in the wild and in cultivation. In the summer of 1930, Bomhard went to Europe where she attended the International Botanical Congress at Cambridge, England and spent time in Britain and on the continent visiting botanical gardens and herbaria gathering information on palms. Her initial research on palms in Louisiana was presented in papers given at two sessions of the American Association for the Advancement of Science Annual Meeting in New Orleans (1931a, b). At the same meeting, she also gave a paper on successional vegetation in areas of pine timber harvest (1931c). Sometime during this time period, Bomhard visited the Panama Canal Zone where she made note of coconut palms.

Hiatus 1932–1933

Miriam Bomhard resigned from the faculty of Newcomb College in June 1932 for personal reasons. The following information is derived from her papers and notebooks at Cornell. While attending the International Botanical Congress in England July 1930, she met Frederick S. Ward,

1. Miriam L. Bomhard doing field research (1930s?). The following notation is inscribed on the reverse of the original photograph "Dr. Bomhard pursuing her researches in the top of palm tree in Audubon Park."

who was then apparently pursuing graduate work at Cambridge. Details of the subsequent romance are unknown but progressed to the point that in April 1932 their engagement was announced. At that time, Ward was employed as a mycologist with the British Department of Agriculture in Kuala Lumpur, Malaya. The wedding was to take place in Kuala Lumpur in August where the couple apparently intended to live.

Travelling by sea to Britain in July, Bomhard embarked on another ship in Southhampton bound for Malaya. Enroute the vessel called at Algiers and Port Said, where Bomhard was able to see date palms, proceeded through the Suez Canal and stopped in Colombo. She made inquiries about visiting Peradeniya Botanic Garden at Kandy, but there was insufficient time in port to permit such an excursion. In late August, Bomhard arrived in Penang, Malaya. Her notes from that period comment on coconuts, arecanut, and *Phoenix paludosa* palms seen on excursions out of Kuala Lumpur and Penang, but there is only a single reference to the fact that the wedding did not take place. No explanation for this abrupt change of plans is found among her papers.

Bomhard decided to return to the United States by sailing eastward to complete a circumnavigation of the world. First she went to Sumatra in September and made several excursions into the forest, arranged by local Dutch scientists, in the area around Medan. Her notes contain references to the following palms and their utility: coconut, sago (*Metroxylon sagu*), numerous kinds of rattan, sugar palm (*Arenga saccarifera*), *Caryota rumphiana*, *Salacca conferta* and nipa (*Nypa fruticans*). On one field trip Bomhard even saw *Johannestijsmannia altifrons* in its habitat.

From Sumatra, Bomhard journeyed on to Singapore, where she visited the Botanic Gardens, and sailed from there to the Philippines. In Manila she ate a palm heart salad and became familiar with the buri palm (*Corphya elata*) and its use in making hats. Travelling on she went to Hong Kong, Shanghai, and Japan, where she noticed the attractive landscape use of *Trachycarpus fortunei*. Crossing the Pacific Ocean, Bomhard made

2. A portrait photograph of Miriam L. Bomhard (1940s?).

a stop in Honolulu and reached California early in 1933. While in California she made a side-trip to see *Washingtonia filifera* in its native habitat near Palm Springs.

In spite of the personal disappointment she likely felt (she never married), Bomhard turned the experiences of a round-the-world trip (as she would later refer to this event in her life) to good professional advantage. She had gained first-hand knowledge that she drew upon to establish a reputation as an authority on palms and, presumably, inspired her to continue to research and write about the Palmae.

Washington, D.C. 1933–1952

Upon her return to the United States, Bomhard made contact with Tulane University and in the summer of 1933 was engaged to complete a classification of a herbarium collection. Later that year she moved to Washington, D.C., where she took a position as a pathologist in the Bureau of Plant Industry, Department of Agriculture, and the following year transferred to the Forest Service to a research appointment in what later became the Division of Dendrology and Range Forage Investigations. Dr. Bomhard lived in Washington, D.C., until shortly before her death.

In her new position, Bomhard was able to reactivate her study of native and introduced Louisiana palms. She gave a presentation on the morphology of the Louisiana palmetto (*Sabal minor*) at a scientific meeting held at her alma mater in December 1934 (1934). This was followed the next year with the description of a new species, *Sabal louisiana* (Darby) Bomhard, which recognized the arborescent form of *S. minor* as a distinct species, based upon original work by William Darby in 1816, J. K. Small in 1926, and supplemented with her own field work in 1933 (1935a). The new species was recognized by Dahlgren (1936). Over the following decade, on regular trips to Louisiana, Bomhard continued to collect field data on *S. louisiana*, which led to another publication on the subject (1943b). A year later, however, Bailey (1944), apparently without knowledge of Bomhard's new publication, reduced *S. louisiana* to synonymy with *S. minor*. Glassman (1972) followed Bailey and considered *S. louisiana* a synonym and so it has remained.

In the mid 1930s, Bomhard moved ahead with a project to produce a larger study of all of the native and introduced palms in Louisiana. She had completed a survey of more than 25 palm species successfully grown in the state (1935b), and interested the Louisiana State Department of Conservation in publishing the results. Bomhard drew up a two-page conspectus of a book to be entitled "Palms in Louisiana"; its publication to be preceded by a series of articles in the *Louisiana Conservation Review*. With some delays, the articles were printed (1935c, d; 1935 a, b; 1939a, b, c; 1940a; 1941), but the book was never published.

Research on the genus *Butia* for part four of the series on palms in Louisiana led Bomhard to describe a new taxon, *Butia eriospatha* ssp. *punctata* (1938b), based on plants cultivated in different locations in New Orleans which bore fruits with distinctly pitted skin. According to a footnote (p. 42) a formal description of the subspecies was to be published in the *Journal of the Washington Academy of Sciences* in October 1938, but for reasons unknown never appeared. In a listing of palm genera Bomhard compiled (1942) the bino-

mial *Butia punctata* is included. Given that neither the trinomial nor the binomial were validly published, both names will be designated as *nomen nudum* in the revision of the genus *Butia* in preparation by S. F. Glassman (pers. comm.).

Bomhard took up the subject of wax palms in the late 1930s, and produced an excellent historical account of the *Ceroxylon* spp. of the Northern Andes (1937b). A Spanish translation of the article was published in Colombia (1940b). Additional research on the subject led to an article validating the species *Ceroxylon ferrugineum* André (1943a). Combining the subjects of palm oils and waxes, Bomhard (1945) contributed a chapter in a book assessing potential new crops in the Americas. A general article on Brazilian oil palms appeared the next year (1946) and in 1948 she served as the taxonomist for a vegetable oilseed mission (palms were a major focus) to Venezuela (see Jenkins et al. 1949). Bomhard apparently did not travel to Latin America in relation to any of the foregoing research.

Two other publications round out Miriam Bomhard's contributions to palms. A booklet entitled *Palms in the United States*, the palm work for which she is best known, appeared (1950). In it she was able to use some of the material assembled for the aborted book on Louisiana palms. The booklet was popular and was slightly revised and reissued in 1953, after her death. The second publication, a leaflet describing building uses of palms, appeared posthumously (1955). It too generated enough interest to justify a slight revision and reissue in 1964.

Apart from palms, Miriam Bomhard was a recognized expect on range forage plants of the United States. She was a contributor to a handbook on range plants (1937a) and at the end of her life co-authored a study of forage plants in Louisiana (Langdon et al. 1952).

Conclusion

Foreshortened though it was, Miriam L. Bomhard lived a full and accomplished life. Newspaper obituaries (five were found), published in Washington, D.C., and Pittsburgh, all referred to her as an authority on palms. By specializing in palms early in her professional career, occasioned by the move to New Orleans, a lifelong interest in and appreciation for this group of plants resulted. Bomhard's greatest contribution to the study of palms was to raise the level of awareness in the United States about their varied and widespread utility. In her own words from an interview: "If it became necessary to choose the most important tree in the world for preservation, the coconut palm would be the obvious choice" (*Washington Star*, 10 April 1950).

Acknowledgments

I thank the following individuals who provided invaluable information that made possible the writing of this article. Elbert L. Little, Jr., Arlington, VA; Natalie W. Uhl, Bailey Hortorium, Cornell University; Anita L. Karg, Hunt Institute for Botanical Documentation; Janet Kegg, American Association for the Advancement of Science, Washington, D.C.; and Susan Tucker, Newcomb College Center for Research on Women, New Orleans, LA.

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LETTERS

Dear Editors,

I live on the island of Curacao about 120 km North of the Venezuelan coast. In Curacao we find the palm *Copernicia tectorum*, the Venezuelan "palma llanera." This palm usually occurs in man-made reservoirs which are flooded once or twice every few years and also at the edge of some salinas. In Curacao these are dry floodplains near the sea which can flood with fresh water during the rainy seasons. It has always been assumed that this palm has been introduced to the island by man, and is dispersed by man. Lately I have been wondering whether this may have been an indigenous palm after all and whether it is being dispersed by waterfowl such as ducks or by fruit-eating doves, parrots, or bats. It seems unlikely that these palms would have been planted by man in all the different locations where they are found. The palms are not being used and there would be no economic incentive to plant them, although there may have been such an incentive in former colonial times. Since maize stalks were used for roofing material, the palms were not used as roofing material. Another possibility is that they were in fact introduced by man and are now being dispersed by goats.

In pre-Columbian times *Copernicia tectorum* might have occurred in a few places where water was found standing during the rainy season. If it is dispersed by ducks one would expect it to occur over a much larger range including the West Indies where it does not occur. This would argue in favor of a relatively short-range flying animal that could cross over from Venezuela, but would not range much farther. A parrot, the Yellow-shouldered Amazon parrot (*Amazona barbadensis*), could be a possible candidate.

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