




Reviews

Untold Stories: Reclaiming Histories of Marginalized Scientists From Archives

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Keywords: history of science, diverse storytelling, anti-racism

<https://doi.org/10.18061/bssb.v2i1.9189>

Bulletin of the Society of Systematic Biology

The halls of science whisper untold stories. Whose stories are told, and in what way, is often a function of the storytellers' privilege and the environment in which the subject existed (Dawson, 2018). Similarly, the culture of science is characterized by who is in power in scientific institutions (Carter et al., 2019; McGee, 2020). Throughout history, people marginalized because of their personal identity have gone uncredited for their scientific work or were relegated to a footnote in the narrative of those scientists from the majority (typically of European descent and assigned male at birth) (Dung et al., 2018). The California Academy of Sciences, one of the oldest scientific institutions in western North America, is no exception to this exclusionary trend (Hittell, 1997). In daylighting the stories of marginalized staff and researchers, we acknowledge our complicity in the racist history of science (Cell Editorial Team, 2020; Saini, 2019) while also revealing a fuller and truer picture of the history of our institution—and of science as a whole.

The California Academy of Sciences (the Academy) is one of many scientific institutions reckoning with their troubling histories. The origins of the Academy were rooted in a settler colonialist mindset. The founders were inspired to construct an academy of science because they viewed the West (USA) as scientifically undiscovered: “we have on this coast a virgin soil with new characteristics and attributes, which have not been subjected to a critical scientific examination” (Hittell, 1997). While the prestige of the Academy came from its seemingly pioneering origins, the founders failed to consider the indigenous Ramaytush Ohlone people who historically lived on the land, held traditional ecological knowledge of the land from millennia of study and observation, and were systematically removed and murdered by the state and federal government to make way for these newly arriving settler colonialists (Madley, 2017). The founders of the Academy continued a tradition established by early European colonialists who used colonial networks and infrastructure to build scientific collections (Schiebinger, 2017).

In a similar juxtaposition, the Academy is often lauded for its early inclusion of women. During its first year in existence (1853), the all-male members of the Academy con-

cluded, “[W]e highly approve of the aid of females in every department of natural science, and invite their cooperation” (Hittell, 1997). However, women were not accepted as members of the Academy until 1878, still much earlier than similar institutions. The Academy does stand out from other natural history museums of the era in that its first paid employee, the curator of botany, was a woman (M. Katharine Brandegee). However, like many other natural history museums, the body of curators since its founding has been overwhelmingly male and of European descent, a trend that continued until the 2010s. The first curator of color, Tomio Iwamoto, was not hired until 1972—over 100 years after the founding of the Academy. At this stage of the project, we have not been able to find information of historical Black/African American or Indigenous scientists in the Academy's archive. We know that contributions from people of color were often omitted and not documented in natural history museums (Das & Lowe, 2018). The absence of African American scientists in the Academy's archival materials is also a reflection of the field of evolutionary biology; the first PhD in the field was awarded to Joseph L. Graves, Jr. in 1988, and African Americans currently only make up 0.3% of the field (Graves, 2019). Thus, the Academy, while more progressive than its contemporaries in its early stated support for and employment of women, maintained the status quo of a professional environment that marginalized non-white and non-male identities in the practice of science. The stories that follow represent the lives and accomplishments of some of those figures, and it is our hope that their contributions are celebrated and illuminated.

Methods

Academy archivists, including a graduate student, undergraduate students, and high school interns, profiled scientists from our institutional history using archival materials from the Academy Library to shed light on stories that have not been told in their entirety until now. To identify the scientists we wanted to profile, we began with a general search through the archives at the Academy. We man-



ually reviewed archival materials including annual reports, member newsletters, and the Academy's publication, the *Proceedings of the California Academy of Sciences*. Stories of women and people of minoritized racial backgrounds were flagged to be investigated further. We also solicited suggestions from current research staff at the Academy of any additional people that they were aware of through their personal research or familiarity with the Academy's research collections. We only considered those candidates who are deceased. We narrowed the initial collection of 36 profile candidates down to seven, based on the availability of information and the scope of the project. For each profile subject, we read their correspondence, research papers, and field notes. We examined newspaper and magazine articles and biographical information written about them. We examined the photographs they took and even, in the case of Baptista, the items they left on their desk following their death. Many archival and related sources provided general knowledge and context that helped craft the stories (Kodak competition 1929; Petrunkevich, 1932–1963; U.C. scientist 1937; Burnett, 1943; Cooley, 1943; Frizzell, 1965; Peck, 1969; Takahashi, 1943; Ynés Mexía collections 1975; Anema, 2019; Baptista, 1981; Bitterbaum, 2001; Bracelin, 1982; Brady, 1982; Chan, 1991; "For the Birds," 1985; Hittell, 1997; Jorge, 2000; Poole, 1986; Rubenstein, 1996; Sonoda, 1976; Tudor, 2001; IBSS 2020; Niwa, 2021; Simons, 2021; Chan personal notebooks and slides; Gertsch, n.d.; Schwartz, n.d.). Based on the information found in these primary and secondary sources, we compiled profiles for the subjects of this research. Our project was borne out of the IBSS Anti-Racism Action Plan at the Academy (see: <https://www.calacademy.org/ibsss-anti-racism-action-plan>) and was a collaboration among a team who brought a diversity of lenses through which to tell these stories.



Figure 1. Pearl M. Sonoda (1918–2015)

Sonoda was an ichthyologist who survived a Japanese internment camp during World War II and went on to devote nearly 30 years as a senior curatorial assistant in the ichthyology department at the Academy. Photo circa 1968, California Academy of Sciences Special Collections.

Pearl M. Sonoda (1918–2015), Unsung Ichthyologist

Pearl M. Sonoda (Fig. 1) was the third of four daughters born to Japanese immigrants, Tomoji and Sachi Sonoda. Her father was an ambitious asparagus farmer who managed 200 acres in Imperial, CA. Forced to drop out of her studies at Pomona College in March 1942, the U.S. government sent Sonoda and her family to internment camps for Japanese Americans. Sonoda's interest in natural history did not wane during her incarceration. While herpetologist Karl P. Schmidt worked with the Quakers and the American Friends Service Committee to support Japanese Americans interned in camps, he learned of Sonoda's acuity for biology and, in 1943, sponsored Sonoda to leave the camp to work for him at the Field Museum in Chicago.

From 1943 to 1955, Sonoda was the secretary and assistant in the division of mammals at the Field Museum. There she met Margaret Bradbury in 1947; Bradbury was the staff artist in the department of zoology at the museum, and the pair would later grow close. Sonoda called her Marge. It is unclear whether their relationship was romantic or platonic. Sonoda later served as an assistant in the division of fishes at the Field Museum from 1955 to 1967. Her contributions to the department must have been significant as ichthyologist Marion Grey honored Sonoda in 1959 by naming a genus of deep-sea stomiiform fishes *Sonoda* after her (Grey, 1959). She authored three manuscripts during her career, and her first was an obituary for Marion Grey (Inger & Mayr, 1964). In 1960, Sonoda was also a member of the Chicago committee for meetings of the American Society for Ichthyology and Herpetology (ASIH).

Sonoda came to the California Academy of Sciences in 1967 to accept a position as a senior curatorial assistant in the ichthyology department. Bradbury had moved to the Bay Area in 1963 to work as an assistant professor of biology at San Francisco State University. The pair lived together in Daly City and later bought a home in Pacifica, where they lived for nearly 30 years together and were known as gracious hosts.

As a senior curatorial assistant, Sonoda was responsible for managing thousands of fish specimens, facilitating loans and visits, and keeping order in the ichthyology collections. Her work often entailed writing letters of correspondence to facilitate loans and answer curatorial questions. When scholars requested copies of a journal, they often began their letters with “Dear Sirs” or “Dear Gentlemen.” In her replies, Sonoda often signed off with “(Miss) Pearl Sonoda,” thereby emphasizing the “Miss” in response to these assumptions of her gender. “She was a strong person, a real strong person,” remembers Tom Tucker, curator of aquatic biology at the Academy.

Sonoda authored two publications during her time at the Academy (Nelson & Sonoda, 1987; Woods & Sonoda, 1973). Like in Chicago, she served on the San Francisco committee for ASIH meetings in 1989. As a testament to her ingenuity, Sonoda maintained an aquarium that required no filtration or heater—the plants she selected for it made it a fully functioning ecosystem right on her desk.

Not only did Sonoda perform her duties with effectiveness, she brought joy to her department. She planned social activities like birthday parties, lunches, and coffee breaks. She would set out jigsaw puzzles on the ichthyology library table for the staff to work on during breaks. In addition to caring for the ichthyology library, Sonoda always kept candy on hand for eating while reading. She was, in the words of David Catania, senior collection manager of ichthyology at the Academy, the “sweetest lady you’ve ever known.” Sonoda retired from the Academy in 1995, after nearly thirty years of service.

After her retirement in 1995, Sonoda moved back to Chicago to live with her sisters, Mary and Louise. Bradbury remained in California until her passing in 2010 (Iwamoto et al., 2011). When Sonoda’s health declined in 2010, she moved to Arvada, Colorado, to live with her sister Margaret and her family. Sonoda died in Colorado on March 4, 2015.

Luis Felipe Baptista, PhD (1941–2000), the Bird Man of Golden Gate Park

Luis Felipe Baptista (Fig. 2) was born of Portuguese-Chinese descent in Hong Kong on August 9, 1941. He grew up with a Christian education, which introduced him to classical arts and music. Most of his childhood was spent exploring the world around him, making observations of insects and birds. As a boy in Hong Kong, Baptista raised finches and explored teahouses with sections dedicated to people who loved birds (Poole, 1986). He later recounted his childhood encounters with birds, writing about the common bird names that he and his community in nearby Macau used (Baptista). With the combination of his education and hobbies, Baptista’s upbringing curated his love for nature’s aviators.

Baptista came to San Francisco in 1961 as an 18-year-old undergraduate (Poole, 1986). In 1964, Baptista enrolled in a vertebrate natural history class at the University of San Francisco where he discovered that he could translate his love of birds and nature into a career (Jorge, 2000; Poole,

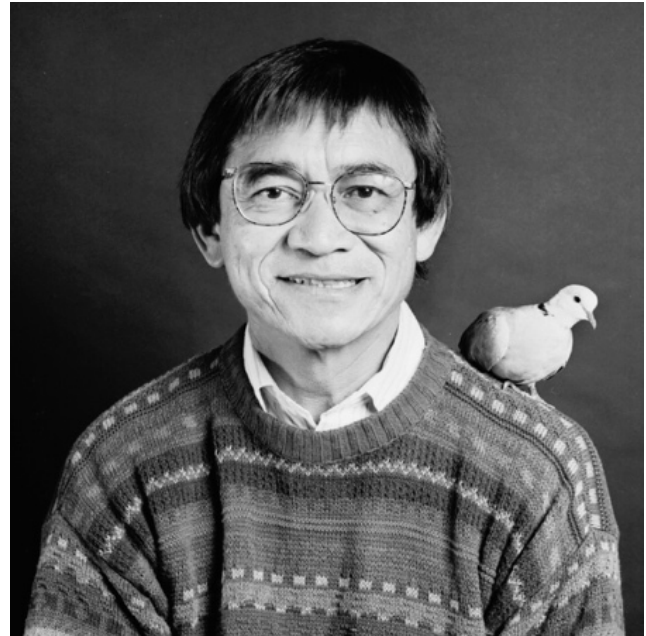


Figure 2. Luis Felipe Baptista, PhD (1941–2000)

Baptista was an ornithologist who served as the curator of birds and mammals at the Academy and demonstrated birdsong dialects unique to different neighborhoods in San Francisco. Photo circa 1990, California Academy of Sciences Special Collections.

1986). By 1972, he had earned his Ph.D. at the University of California, Berkeley where he began his in-depth research on the dialects of song among white-crowned sparrows in the San Francisco Bay Area (Baptista, 1972). Baptista then went on to conduct research at the Max Planck Institute for Behavioral Physiology in Germany (Poole, 1986). He also taught at Occidental College in Los Angeles, taking his students on weekly field trips and sneaking into residents’ backyards for the possibility of a birdsong recording (Bitterbaum, 2001). His knowledge of at least five human languages (English, German, Portuguese, several Chinese dialects including Cantonese), and interest in both human and non-human speech in general, propelled his career forward (Bitterbaum, 2001; “For the Birds,” 1985).

In 1980, Baptista joined the California Academy of Sciences in the ornithology and mammalogy department, later becoming the department chairman and curator of birds. It was a return home for Baptista as he had previously been affiliated with the Academy during his time as a master’s student; he met and worked with Robert T. Orr who was the curator of birds and mammals at the Academy. There, he continued to study birds, specifically the White-crowned Sparrows (Baptista insisted the common names of birds be capitalized) and bioacoustics (Baptista & Petrinovich, 1984, for example). He could hear the differences in birdsong dialects between different neighborhoods within San Francisco. His work on sparrow song elucidated language acquisition parallels to neurologists seeking to improve speech therapy in deaf children (Poole, 1986). He wrote popular articles to encourage the public to appreciate local birds and create bird-friendly environments in their backyards (Baptista, 1981). The San Francisco Progress dubbed him a “bio-



Figure 3. M. Katharine Brandegee, MD (1844–1920)

Brandegee was a botanist and the first paid curator at the Academy, before any men were given the distinction. Photo circa 1890s, California Academy of Sciences Special Collections.

musicologist” (Brady, 1982), and he was also known as the “Bird Man of Golden Gate Park” (Tudor, 2001).

Baptista’s research made him a well-respected scientist in the world of ornithology and at the workplace. Fond memories between him and his colleagues can be found among the possessions left from his desk—from souvenirs to birthday messages. He truly put love into the relationships he had with others as he did with birds; Erik Bitterbaum remembers him as “a great gossip and student of human personality...[with a] genuine love of people and life.” Bitterbaum also remembers cooking for Baptista one of his favorite meals, liver and onions: “Not many people knew that little tidbit!” Peter Marler, professor emeritus at UC Davis, remembered his terrible driving, “infuriating other drivers by screeching to a halt at the slightest avian sound, blissfully unaware of the traffic jams he created” (Tudor, 2001). Journalist Silke Tudor remembers Baptista fondly with all his enthusiasm and encyclopedic knowledge of birds and their interactions with humans around the world. Baptista’s life ended unexpectedly in 2000. He collapsed while tending to a wild barn owl on his property in Sebastopol, dying while caring for the birds he loved all his life (Tudor, 2001). While Baptista was well-known among ornithologists during his lifetime, we hope that telling his story brings his life to light for more people today.

M. Katharine Brandegee, MD (1844–1920), First Curator of Botany

Born in western Tennessee, Mary Katharine Brandegee (née Layne) (Fig. 3) was introduced to the natural world at a young age. With her father’s desire to venture westward, Brandegee spent her youth traveling to Salt Lake City, UT, Carson City, NV, and finally to El Dorado County, CA. In 1875, at the age of 31, Brandegee moved to San Francisco where she enrolled at the University of California to study medicine. Brandegee received her medical license after three years, but she was unable to establish a successful practice as potential clients refused her services because she was a woman. Departing from her medical practice, Brandegee received mentorships from her former professor

and vice president of the California Academy of Sciences in San Francisco, Dr. Hans Herman Behr. Together they studied botany, and Behr introduced Brandegee to other members of the California Academy of the Sciences.

Just one year after women were allowed to become Academy members, Brandegee became a member of the California Academy of Sciences in 1879. Brandegee began collecting plants for the Academy in 1881. In 1883, Brandegee became the first woman curator of botany in a scientific museum at that time and the first woman curator of the California Academy of Sciences (Daniel, 2008).

She organized and classified the botanical collections at the Academy. She went on her own botanical expeditions, traveling all over the US to study the country’s flora and fill the Academy’s collections. Brandegee’s dedication to her botanical work is reflected in the celebrations of her marriage to Townshend Stith Brandegee in 1889. On their honeymoon, the couple traveled 500 miles by foot collecting and studying flora to take back to the California Academy of Sciences. In 1891, after Albert Kellogg retired, Katherine was offered the position of sole curator of the Academy’s herbarium.

During her time as a curator for the botany department for the California Academy of Sciences, Brandegee became a prominent voice in the evolution of botanical scientific writing. Brandegee, along with the help of her husband, created the scientific journal *Zoe* where she published several of her botanical findings (Brandegee, 1890a, 1890b, 1890c, 1890d, just to name a few in one year). She helped create and operate the California Botanical Club, a club for both professional and amateur plant enthusiasts to create unity between botanists of the Pacific coast regions. Brandegee published her studies of *Portulacaceae*, *Ceanothus*, *Cotyledons incumbent*, and *Cotyledons oblique* plants through the *Proceedings of the California Academy of Sciences* (Brandegee, 1894b, 1894a).

Brandegee and her husband eventually left the California Academy of Sciences and developed herbaria in San Diego and Berkeley. She died on April 3, 1920.

Gordon L. Chan, PhD (1930–1996), Invertebrate Zoologist and Teacher

Gordon Luke Chan (Fig. 4) was born on January 2nd, 1930 in Seattle, Washington. His family moved to the Bay Area soon after his birth (Simons, 2021). He attended Tamalpais Union High School in Mill Valley, California from 1944 to 1948.

From 1948 to 1953, Chan studied at Stanford University where he obtained his BA and MA. Chan furthered his education at Stanford University’s Hopkins Marine Station in 1959, University of Washington’s School of Oceanography in 1960, and University of the Pacific’s Pacific Marine Station in 1961. He later obtained his PhD at the University of California at Berkeley, where he studied from 1967 to 1970. To further his passion for educating others, Chan earned a California Secondary Teaching Life Credential and became a certified instructor for the National Association of Underwater Instructors.



Figure 4. Gordon L. Chan, PhD (1930–1996)

Chan was a beloved teacher, marine ecologist, and conservationist of local Bay Area marine ecosystems as a Research Associate with the Academy. Photo 1975, California Academy of Sciences Special Collections.

Chan collaborated with the California Academy of Sciences as a Research Associate from 1987 to 1993. Throughout his career, Chan collected thousands of images of intertidal and underwater organisms on 35 mm slides. His photos primarily covered the west coast of North America along with Japan, Palau, Guam, and Australia.

Chan dedicated 38 years of his life to teaching future scientists. From 1955 to 1956, Chan taught at Franklin Junior High School in Vallejo, California. From 1956 to 1965, he taught at Sir Francis Drake High School in San Anselmo, California. From 1965 to 1993, he was a professor of zoology and marine biology at the College of Marin. Meanwhile, Chan participated in the California Community College, Division of Vocational and Technical Education State Marine Technology Curriculum study from 1966 to 1968.

Chan centered his classes around fieldwork, even taking his students to Hearst Castle where William Randolph Hearst Jr. invited College of Marin students to swim in his famous pool. Many of his slides included pictures of his students in action during field studies as well as images of seals, whales, sharks, octopuses, and nudibranchs. Moreover, Chan's notebooks showed maps of sites all over the San Francisco Bay Area, with original drawings of marine specimens that he encountered. Chan also co-founded the Bolinas Marine Station about 30 miles north of San Francisco.

In 1971, two oil tankers collided under the Golden Gate Bridge, causing the largest oil spill the San Francisco Bay has ever experienced. Using baseline intertidal population counts from his PhD thesis "Ecological Effects on Duxbury Reef," Chan analyzed intertidal biota changes and recovery for over ten years after the oil spill. This project was one of a few among environmental disaster studies at the time that could compare data from fixed transects before and after the event (Chan, 1970).

Gordon Chan is remembered for his dedication to preserving the natural world and his passion for inspiring his students. At Duxbury Reef, a plaque was created "In memory of Dr. Gordon L. Chan 1930–1996 who, to preserve the tidepool resources of this area, was instrumental in the creation of the Duxbury Reef Marine Reserve." In addition,



Figure 5. Harriet Exline Frizzell, PhD (1909–1968)

Frizzell was an arachnologist who brought order to the spider tree of life yet remained unpaid for her work as a Research Associate with the Academy. Painting 1969, California Academy of Sciences Special Collections.

within a forest grove, another plaque reads, "These redwoods planted in memory of a great scientist, teacher and friend." Chan is known for his best line: "Take advantage of the best tides and don't let it go by the wayside."

Chan's legacy lies in the work of the students he inspired throughout his life. Current Academy scientists Dr. Terry Gosliner and Dr. Gary Williams were Chan's students in high school. Gosliner credited his numerous nudibranch discoveries to the teacher who sparked his interest in marine biology. Gosliner and Williams also named a nudibranch *Hallaxa chani*, in honor of Chan (Gosliner & Williams, 1975).

Harriet Exline Frizzell, PhD (1909–1968), Arachnology Heroine

Harriet Idola Exline (Fig. 5) was born in Walla Walla, Washington, on May 8, 1909. In 1930, she graduated from Reed College with her BS in biology, then earned an MS in zoology from the University of Washington, Seattle in 1932. She earned her PhD from the University of Washington, as well, in 1936. Frizzell spent her summers collecting specimens at the university's biological station at Friday Harbor. During the academic year, she described various species of spiders and did research on the diet of black widow spiders (Exline, 1935, 1936b, 1936a, 1936c, 1936d). Frizzell was the first woman to complete the Sterling postdoctoral fellowship at Yale in 1937 under Dr. Alexander Petrunkevitch; she remained close friends with him, and they corresponded for more than ten years, collaborating on the *Catalog of American Spiders* (Exline & Petrunkevitch, 1939).



Figure 6. Ynes Mexia (1870–1938)

Mexia was a Mexican-American botanist with an adventurous spirit who collected plant specimens for the Academy on her many expeditions. Photo circa 1919–1930, California Academy of Sciences Special collections.

Frizzell lived in South America—primarily Peru and Ecuador—from 1938 to 1943, performing independent research and collecting specimens. In Ecuador, she met Donald L. Frizzell, a paleontologist and geologist, and they married in 1938. Donald was supportive of his wife's scientific research, and the two often made collecting trips together. Both Harriet and Donald Frizzell taught at the University of Texas and, later, the University of Arkansas.

Frizzell worked with the arachnology collections at the California Academy of Sciences from 1948 to 1960, primarily in independent research for the Academy from her home in Missouri. Frizzell was named an elected Fellow and Research Associate of the Academy. Frizzell was very active in the arachnology community, corresponding with prominent arachnologists and identifying the specimens they collected. Frizzell was the appointed taxonomist for a National Science Foundation-funded study of the spiders found in cotton fields, among other prestigious projects (Exline, 1962; Whitcomb, Exline, & Hite, 1963; Whitcomb, Exline, & Hunter, 1963). Frizzell left much of her work unfinished when she died. Among the condolence cards sent to her husband are letters asking to borrow her notes and collections to complete research.

Despite her enormous contributions to the field of arachnology, Frizzell considered herself a housewife first and a scientist second (Peck, 1969). Her work on spiders was her passion, but she never viewed it as more than a hobby and struggled to balance working with running a household. Despite her enormous achievements, among them being the first woman to receive Yale's prestigious Sterling Fellowship, Frizzell lived in an era where women were simply not welcomed into the scientific community as fully recognized researchers. Frizzell died on February 12, 1968.

Ynes Mexia (1870–1938), Plant Collector, Late Bloomer, and Adventuress

Ynes Enriqueta Julieta Mexia (Fig. 6) was born on May 24, 1870, and spent her first nine years in the town her

family founded, Mexia, Texas. Her father was General Enrique A. Mexia, a diplomat and representative of the Mexican government in Washington, DC, and her grandfather, José Antonio Mexia, was a Mexican general and later executed for treason in 1839. Her mother's family was American and her relatives included Samuel Eccleston, the fifth archbishop of Baltimore. Mexia was privileged in her early life, being born of high-status families from both the US and Mexico. She attended private schools in Philadelphia and Ontario and, in the 1880s, moved to Mexico City to live with her father after her parents separated. A young Ynes Mexia lived for much of her childhood in her home just outside of Mexico City where she was attended by servants. Her privilege and monetary means would, later in life, afford her with the means to pursue her passions in plant collecting, which were largely self-funded.

After two marriages in Mexico, Mexia moved to San Francisco in 1908 to seek treatment for extreme mental stress and depression. Mexia's move to California allowed her to join organizations such as the Sierra Club, California Botanical Society, and the Audubon Association of the Pacific. Excursions with these groups inspired her love of nature and plant collecting. By 1921, Mexia had decided to dedicate her life to these pursuits and began her college degree at the University of California, Berkeley at age 51. In 1922, Mexia went on her first botany expedition to Mexico with UC Berkeley.

Mexia's main destinations for major plant collecting expeditions were Mexico and Central and South America. Between 1925 and 1938, just before her death, she went on at least eight months-long expeditions to various locations in these regions. She also conducted the first general collection of flora in Denali National Park and Preserve in Alaska and spent quite a bit of time in the Sierra Nevada, weathering very tough conditions. Mexia became a member of the Sociedad Geographica de Lima, Peru. She was contracted by the California Academy of Sciences to collect plants for botanists at the Academy, and she became an elected life member of the Academy, equivalent to today's elected fellow status.

Mexia documented her travels in her own words and photographs. Mexia was an avid photographer in the field with the Sierra Club, the Audubon Society, and on her own plant-collecting expeditions. She filled several photo albums that are now in the Academy archives. Her photographs were meticulously labeled, sometimes with amusing notes such as "A friendly chat" captioning a photo of two quails.

Mexia was not keen on handling the plants after she collected them; hence, she never formally described any herself. However, over the course of her life, she collected more than 150,000 specimens, which would be categorized into two new genera and 500 new species with 50 of those species named after her (Colby, 1951).

Mexia's sense of privilege and elitism are also evident in some of her writings. She wrote disparaging remarks about the indigenous people in the places she collected plants. For example, she referred to the Amazon River as where "the wild life and the wilder Indians...lurk in its depths."



Figure 7. Toshio Asaeda (1893–1968)

Asaeda was a Renaissance man whose interests were rooted in science. His explorations around the world and work at the Academy made use of his skills in photography and art. Photo circa 1960s, California Academy of Sciences Special Collections.

She described indigenous people in other writings: “Rather stunning they were, and quite willing to pose for their pictures in exchange for a few crackers.” Mexia was also known to have a temper and allegedly stabbed a UC Berkeley graduate student in the leg after the student teased her while having lunch.

Much of Mexia’s life is known to us because of the work of N. Floy Bracelin, affectionately known as Bracie. Bracie and Mexia became friends in a 1927 University of California field course. Following an expedition to Mexico and South America in 1928, Bracie began curating the plants Mexia collected on her trips, a partnership that continued even after Mexia’s death in 1938 (Bracelin, 1938).

In her will, Mexia gave \$25,000 to the Sierra Club and \$25,000 to the Save the Redwoods League, which purchased Fern Canyon in Prairie Creek Redwoods State Park in Mexia’s honor because she especially loved ferns. Mexia’s will also provided funds for Bracie to continue working at the California Academy of Sciences, curating Mexia’s collections and other plant collections.

Mexia was an adventurous woman who taught us the power of taking on new challenges with courage. Mexia herself summed up her outlook on plant collecting and life in general when she said, “I don’t think there’s any place in the world where a woman can’t venture alone.”

Toshio Asaeda (1893–1968), Artist, Photographer, and Exhibits Specialist

Toshio Asaeda (Fig. 7) was born on December 9th, 1893. Not a lot is known about his family—even the names of his

parents remain elusive. Newspaper records at the time of his birth report Asaeda’s family as registered to a town in the east of Yamaguchi province, the southernmost prefecture on Japan’s main island. Yet Asaeda is listed as having been born in Tokyo, and his *curriculum vitae* and immigration records cite the capital city as his place of birth. Such dearth of concrete information and uncertainty of basic facts is a bit of a running theme when researching his life. He was seemingly private and focused on his work more than anything else.

Toshio Asaeda’s mother passed away when he was a child, and he subsequently left his father and siblings to live with uncles for about six months. He moved back to Tokyo around 1910, after the death of his father, and continued his education there at Azabu Junior High School, Tokyo, graduating in 1911 at age 18. He taught at Nakasato Senior High School, Gunma Prefecture from 1912 to 1914. From 1914 to 1916, Asaeda took time off to travel and learn. During this time, he met Yamanouchi Shigeo, an instructor at Tokyo Higher Normal School while gathering rocks, shells, and seaweed. Subsequently, Asaeda enrolled in the Science Department Tokyo Higher Normal School in 1916 where he studied minerals and geology under Denzo Sato. Asaeda taught geography at his alma mater, Azabu Junior High School, in Tokyo from 1920 to 1922.

In June of 1923, Asaeda published a book about mountain climbing as a hobby, and he had hoped to rely on royalties from the book going forward. However, due to the destruction of the 1923 Tokyo Earthquake, the publisher went bankrupt, and Asaeda made the decision to leave for the United States.

By 1924, Toshio Asaeda was living in New York City, learning English at the YMCA and working at a coffee shop. He soon got a new job working at the studio of James L. Clark, a hunter, artist, and taxidermist who oversaw the exhibit and diorama preparation at the American Museum of Natural History. Asaeda credits his time spent there (about two years between 1924 to 1926) as teaching him his skills in taxidermy.

From 1926 until about 1929, much of Asaeda’s time was spent working between Los Angeles and San Francisco. While in the Bay Area, his skill at specimen painting brought him into contact with two men who would tie him to the California Academy of Sciences: Stanford University president David Starr Jordan and biologist Barton Warren Evermann, both of whom worked primarily with fish and both of whom commissioned Asaeda for scientific paintings. Both men would end up in prominent positions at the Academy—the president and executive director, respectively.

The mid-1920s to 1930s were marked by lots of movement, as Asaeda traveled between New York City and California working short-term jobs. By the time of the stock market crash of 1929, Asaeda had been awarded first prize in The Nature Study Classification, a Kodak-sponsored photography competition reported on in the *New York Times* (*An Article about Kodak Competition*, 1929). By 1930, he was back in San Francisco working in a color photography print studio. The economic instability and his own natural ad-

venturous streak led Asaeda, through his connection with Barton W. Evermann, to search for different kinds of work. He would eventually find it with author Zane Grey, who had a ship and was planning to host an expedition.

From the end of 1930 until August of 1931, the Zane Grey Expedition to Polynesia traveled throughout the South Pacific visiting several of its island nations, traveling partly on Grey's ship, the *Fisherman II*. Asaeda painted watercolors and, by Dr. Evermann's request, collected fish specimens for the Academy. When Zane Grey's expedition ended, Asaeda was back in San Francisco. Dr. Evermann, impressed by Asaeda's skill, found him work illustrating for the Steinhart Aquarium at the Academy. It was not long before another opportunity arose with Charles Templeton Crocker. The self-styled explorer and grandson of railroad tycoon Charles Crocker, C.T. Crocker employed Asaeda on a 1932 Academy Expedition to the Galápagos Islands. Asaeda was possibly the first Japanese person to be part of such an expedition to those islands.

For the rest of the 1930s, Asaeda participated in many expeditions, most with C.T. Crocker on his yacht, the *Zaca*. Over the decade, he traveled throughout Eastern Polynesia, Hawai'i, and Central and South America, all the while making photographic prints and watercolors of collected animal specimens. In between expeditions, in 1936, Asaeda married Suzuka Tanizaki.

In 1940, Toshio Asaeda opened a color photography studio in San Francisco. However, World War II was surging abroad, and, especially after the bombing of Pearl Harbor in 1941, the environment became increasingly hostile for people of Japanese descent in the States. A member of the St. Francis Yacht Club even called the Department of Justice about Toshio Asaeda late that year, telling them of Asaeda's participation in the scientific expeditions and claiming (without evidence) that he had been sending papers and reports of those trips back to Japan. Within two months, the Department of Justice had issued a search warrant for Asaeda's home, where he voluntarily accompanied them to the San Francisco Field Office. Executive Order 9066—which created “military zones” where concentration camps would intern Americans of mostly Japanese and Asian descent—had been signed by President Franklin D. Roosevelt at that point. Despite insisting at every point that his only allegiance was to the USA, providing a list of references which included C.T. Crocker, Barton Evermann, and two Steinhart Aquarium superintendents, and the case even being closed due to no evidence of subversive activity, Asaeda and his wife were removed from San Francisco.

In June of 1942 Asaeda and Suzuka were forcibly moved to the Tanforan Assembly Center in San Bruno, CA for staging. In October of that year, they moved to the Topaz Internment Camp in Utah. Most of the people interned there were coming from the San Francisco Bay Area, also by way of Tanforan. While forced to be at Topaz Camp, Asaeda used his knowledge and past experiences as a resource to other people interned at the camp, teaching art and science lessons throughout his incarceration. He also spent some of his free time creating watercolors of the camp itself. Some can be seen in the Springville Museum of Art in Utah, and

39 of his paintings are kept at the National Museum of Ethnology in Osaka, Japan.

Toshio Asaeda and his wife were at Topaz until October of 1945. His San Francisco photo studio was long lost to him by that point, and his search for work led him to become a research assistant at the California Institute of Technology in Pasadena, CA. He also worked for paleontologist Wyatt Durham through 1947 where he made casts and photographs. With Asaeda's connections to the California Academy of Sciences and his history of temporary and commissioned work there, Asaeda was able to assume the role of assistant curator of exhibits in spring of 1949.

In 1952 the Immigration and Nationality Act was passed, which ended the types of racial restrictions to immigration and naturalization that had kept Asaeda from becoming a full citizen. Just three years after, and at 62 years of age, Toshio Asaeda became an American citizen.

From 1949 until his retirement in 1965, Asaeda was remarkably prolific and versatile in the kinds of projects he undertook at the Academy. Throughout the 1950s he did taxidermy on rhinos, hippos, and other mammals which ended up in the Academy's African Hall. He did the same with fish and birds for various displays. In 1956, he painted a Martian landscape for the Academy planetarium, which was only four years old at that time. He also created decorative floral illustrations for a book about famed Academy botanist Alice Eastwood. All the while, Asaeda managed the exhibits and took photographs for the Academy.

At the age of 72, Toshio Asaeda retired from CAS. He left with the intention of working on his garden and visiting Japan with his wife. Just two years after, however, and before he could visit the country of his birth, Asaeda passed away on March 18, 1968.

The legacy and depth of involvement that Toshio Asaeda left behind at the Academy of Sciences is still being discovered. The vivid and colorful watercolors of fish from the earliest days of his Pacific expeditions remain all over the Academy, used as promotional as well as scientific resources. Animals which were preserved by Asaeda can still be found in the halls and collection shelves. Much of what we see and interact with at the Academy bears the quiet influence of the man known mostly as just Toshio, and his wide range of expertise may finally get the celebration and full recognition that it deserves.

Conclusions

The stories of these scientists reveal both the triumphs and challenges for natural history researchers with marginalized identities throughout the 20th century. We provide a richer and more accurate depiction of the institution of the California Academy of Sciences, as well as the legacy of natural history and systematics. Learning about people who faced challenges due to their identities may provide inspiration and a sense of belonging to other underrepresented scientists and students. Additionally, acknowledging the racism and colonialism at the Academy and in the field of science is a step towards addressing the past (Das & Lowe, 2018). Institutions and the systematics community

need to uplift and support contemporary researchers from marginalized groups. We must both strive to create new mechanisms for the recognition of “success” while changing the culture of our field such that diversity equity and inclusion are valued above traditional metrics of impact. As a community, we can celebrate diverse identities of researchers by acknowledging and commending accomplishments, even if we are doing so years after their deaths.

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Funding

We would like to thank the following funding sources: ARCS Foundation, the Academy Library fund, the Careers in Science Program, NSF award DBI-1852276 to Esposito and Johnson, and NSF award DEB-2026623 to Crews and Esposito.

Acknowledgments

The Careers in Science leadership team, Leah Kalish and Eryc Pierrelouis, administered the internship program that supported the high school interns. Rebecca Johnson, in addition to Lauren Esposito, administered the internship program that supported the undergraduate intern. We also thank Cecilia Alvarado for her contributions to the early stages of this project, particularly in regard to the story of Ynes Mexia. Thank you to Seth Cotterell for support in the library and archives. Thanks to Laurel Allen for brainstorming framing of the paper and the title. Thanks to the Indigenous Solidarity Group at the Academy for support in properly acknowledging the Ramaytush Ohlone as the original caretakers of the land on which the Academy sits.

Submitted: October 04, 2022 EDT, Accepted: January 30, 2023 EDT

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