



PATSY ANN MCLAUGHLIN
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Patsy Ann McLaughlin was born in Virginia Mason Hospital, Seattle (King County), Washington state. She passed away from heart failure at a hospital near her home in Sedro-Woolley, Washington, less than two months short of her 79th

birthday. Anyone who met this unique and strong-minded woman quickly learned that she preferred to be called "Pat," and that she was as unpretentious as that short name. Her father, Elmer Robert McLaughlin (1901-1990), was born in

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California, worked as a U.S. Navy payroll officer in San Francisco and as a finance clerk in Seattle. Her mother, Edna Pearl Lessenger (1901-1954), was born in Iowa, obtained a nursing certificate in Illinois, briefly worked as a telegrapher for a railroad in the Pacific Northwest, and continued her nursing in Palo Alto, California, for several years prior to her death. Pat had neither siblings, nor children; her ashes were scattered in Fidalgo Bay, Washington.

EARLY YEARS (UNTIL 1965)

Only sketchy information concerning Pat's early years and upbringing exists since it was a troubled part of her life that caused her pain when remembered, and she seldom mentioned it even to her closest friends. It is known that Pat's father had lived in San Francisco, and her mother in Iowa prior to 1930. Yet, at least two years before and some years after her birth, Pat's parents lived in Seattle. The couple separated when Pat was very young – her father, immediately; and her mother, eventually, returning to California. The parental split was an event that affected Pat deeply. The little girl appears to have been sent to live with an aunt for a short time, and at age six, for unknown reasons, but probably because she was already of school age, was sent alone by train to live back with her father in San Francisco. It is not surprising that this “spirited” little girl was then enrolled in San Francisco's Notre Dame des Victoires catholic elementary school. Later in life, Pat would often reminisce to close friends about this period of her childhood, during which she had entertained the idea of becoming a nun. Pat's Mother Superior Julia, of the Sisters of St. Joseph of Orange, wisely asked her to wait before making a decision to pursue a spiritual path. In later years, Pat and one of her teaching nuns shared frequent correspondence.

Pat then attended Palo Alto Junior High School, graduating in 1946, and Palo Alto Senior High School, graduating in 1949. She next chose to attend the University of Utah, Salt Lake City, remaining there about two years, obtaining no degree. Shortly thereafter, Pat enrolled in the University of Washington, Seattle, where she was unable to make the grades required of a student. By 1950, she had returned to California where she lived with her mother in Palo Alto, and decided to enlist in the military. The Women's Armed Services Integration Act of 1948 finally enabled women to serve as permanent, regular members of the armed forces, although enlistment by women under age 21 required parental consent. Consequently, in 1951, at age 19 and with the consent of her parents, Pat entered the U.S. Air Force WAF (Women in the Air Force) program, attended the Technical School at Keesler Air Force Base, Mississippi, and worked as a Radar Mechanic during the era of the Korean War (1950-1953). Pat truly liked the military and aspired to become an officer, but found it difficult to keep up with the physical and other demands required of her male counterparts. When her commanding officer told her that she would make a “lousy” officer, not only was Pat greatly disappointed, in disgust she decided to terminate her military “career” one month before her official discharge in 1955. This would not be the last time in her life that Pat would show such stubbornness. Whether, as some friends suspect, Pat's

innate toughness was a result of her military experience, or was a natural personality trait, she often could be harsh in her opinions and unforgiving of mediocrity and shallowness. Underneath, however, she was caring and could be helpful to a fault.

Following her service in the Air Force, and aided financially by the G.I. Bill, Pat once more enrolled in the University of Washington, Seattle, where she intended to obtain a degree in food technology. Thankfully for carcinology, one of her instructors, Dixie Lee Ray (1914-1994), a well-known marine biologist (who, in 1973, would become chair of the U.S. Atomic Energy Commission, and who, in 1976, would be elected the first woman governor of the state of Washington) convinced Pat to pursue, instead, a degree in the natural sciences. Under the mentorship of the notable invertebrate zoologist Paul Illg, Pat earned her Bachelor of Arts degree with a major on zoology in 1957. She immediately landed a job as a Fishery Biologist at the Biological Laboratory of the Bureau of Commercial Fisheries in Seattle, where she worked with J. Frank Hebard until 1960. The main thrust at the Bureau was the study of Bering Sea fisheries. Pat worked identifying the benthic invertebrate fauna co-existing with the Alaskan king crab *Paralithodes camtschaticus*, and in particular studying the stomach contents of this crab based on specimens captured by the trawler “Mitkof” off the Alaska Peninsula in the southeastern Bering Sea. A short but key paper resulted from that beginning period of her research, which even to this day remains the basis of knowledge of the diet of this commercially important anomuran crab (McLaughlin and Hebard, 1959). One of Pat's remarkable lifetime characteristics was her refusal to waste any research efforts; any work that she carried out was turned into a manuscript for publication. Thus, it is not surprising that even her first stint in a biology laboratory resulted in a scientific paper.

It is almost certain that Pat must have received the hermit crab mantle, or at least the inspiration to study these anomurans, directly from Belle Alice Stevens (1894-1960), a well-known science teacher in the Seattle area who taught at St. Nicholas High School (McLaughlin and Gilchrist, 1993). Stevens had made the first contributions to the knowledge of north Pacific hermit crabs based on her experiences and collections at the Puget Sound Biological Station, Friday Harbor, San Juan Islands. Stevens also had a Research Assistant appointment in the Oceanography Department at the University of Washington, where the two must have met while Pat was working with the Bureau of Commercial Fisheries. Her expertise in hermit crabs began to develop after Stevens died and Pat had the opportunity to work with Steven's collections. Pat treated Stevens only briefly in her paper on “Women's contributions to carcinology” (McLaughlin and Gilchrist, 1993), and regrettably a proper obituary of Stevens has yet to be published.

Pat's long time mentor, the famous cirripedologist Dora Priaux Henry (1904-1999), recruited her in 1960 as Assistant Zoologist at the Department of Oceanography, University of Washington. There she worked on the sorting and identification of euphausiid collections from midwater trawl samples, barnacle settling rates, and also served as supervisor in the sorting of the department's amphipod samples.

Dora was a productive and knowledgeable scientist as well as an experienced editor, and over time became Pat's hero and close friend (Pat wrote Dora's obituary: McLaughlin et al., 2000). It must have been Dora who fixed in Pat a phenomenal, even obsessive work ethic, and who also instilled in her not only the strictness and accuracy that characterized her own writings, but an unforgivable critical ability when it came to reviewing the writings of others. Those who asked Pat to review manuscripts, or her students, quickly discovered that her comments could be devastating! Dora also had a great influence in Pat's strong belief in the equal treatment of women in the work place, even at a time when this was a new concept. While at the Department of Oceanography, Pat continued to work in a large, 3-year ecological survey of the invertebrates from the eastern Bering Sea being conducted by the Bureau of Commercial Fisheries (McLaughlin, 1963). It was during this time in her professional life that she developed great skills at sorting and handling the complexities of the taxonomy of invertebrates in general, and crustaceans in particular. She also became acquainted, primarily through correspondence and loans of specimens, with well-known carcinologists in the U.S. and abroad, such as F. A. Chace, Jr. (Smithsonian Institution, Washington, D.C.), and L. B. Holthuis (Rijksmuseum van Natuurlijke Historie, Leiden), among many others. Furthermore, Pat's contact with Dora at that time was the catalyst for her early interest in the taxonomy of barnacles, which continued throughout her life albeit she published on the group only sporadically. As an associate investigator under one of Dora's National Science Foundation grants, Pat worked in the study of new techniques for evaluating quantitative diagnostic characters in barnacle taxonomy. The two went on to co-author several important papers including: the discovery of complementary males in balanomorphs (Henry and McLaughlin, 1965, 1967, 1986), a group previously thought to be exclusively hermaphroditic; and the unequalled, meticulous revision of the *Balanus amphitrite* complex (Henry and McLaughlin, 1975), for which Pat planned and carried out the detailed quantitative aspects, most of which she had to later finish writing while simultaneously working on her Ph.D. dissertation.

WASHINGTON, D.C. YEARS (1965-1968)

News of Pat's abilities as a competent biologist and carcinologist reached Waldo L. Schmitt at the Smithsonian Institution, Washington, D.C., who offered Pat a job in 1963 as his assistant to work in his ongoing revision of the New World pinnotherid crabs. After some indecision because she was unsure she could do the job properly, Pat declined, although in reality she was quite happy working with barnacles in Dora's laboratory. Ultimately, Pat was recruited in 1965 through the Smithsonian's Oceanography and Limnology Program to work in the recently formed Smithsonian Oceanographic Sorting Center. As result, Pat moved across the country to Washington, D.C., to begin a new job as Supervisor for Invertebrates at the Sorting Center. She was in charge of a large operation that included the supervision of 18 technicians in the sorting and preliminary identifications of numerous and varied benthic samples from, among other sources, the International Indian Ocean Expedition. While

there, Pat took advantage of the association that existed between the staff of the Smithsonian and George Washington University, and obtained first her M.Ph. (or masters) in 1969 and then her Ph.D. in 1972. On July 12, 1972 she successfully defended her dissertation entitled: "The hermit crabs of the genus *Pagurus* (Crustacea: Decapoda: Paguridae) from northwestern North America, with a partial revision of the genus." Approval of her defense was not without first having to iron out some taxonomic disagreements with F. A. Chace, Jr., who served as her advocate, but who had to be abundantly convinced by Pat of the justification for removing *Pagurus gilli* and *P. cavimanus* from *Pagurus* to place them in *Elassochirus*. He finally realized that Pat was correct. When Pat published this outstanding, voluminous doctoral work, she added *Paguristes* for good measure (McLaughlin, 1974), and it remains to this day an unequalled, indispensable monograph, beautifully illustrated mostly with Pat's own drawings. Years later, Chace would write to Pat thanking her for being at the time just about the only person willing to work on the taxonomy of hermits, saying: "I shall never understand why anyone wants to study these asymmetrical beasts that refuse to recline properly on demand and that vary to such an extreme that definition of specific characters is a Ouija-board activity but I'm mighty glad that someone does." [F. A. Chace, Jr., in litt.]. Pat worked at the Sorting Center until, once again, she demonstrated her uncompromising character and resigned in 1968 after experiencing serious discrepancies with the director, according to her own correspondence, over "administrative philosophies."

MIAMI YEARS (1969-1987)

Without having yet graduated from George Washington University, Pat then moved to south Florida in 1969, where she was hired at the Rosenstiel School of Marine and Atmospheric Science (RSMAS), University of Miami, to work first as Research Assistant and later as Research Associate, with Anthony ("Tony") J. Provenzano, Jr. With Tony, funded by the National Science Foundation, she concentrated in detailed studies of morphological variations and systematics of pagurids and cirripedes, using as a base the rich collections obtained aboard RSMAS vessels during broad expeditionary cruises that trawled the deep waters of the western and eastern tropical Atlantic, and tropical eastern Pacific. It was at this time that she learned from Provenzano the techniques of decapod larval rearing and maintenance of marine organisms in the laboratory. That experience served her well for she then became an expert on larval development, and over her lifetime published 26 important papers on the larvae of pagurids, lithodids, and brachyurans, and incorporated larval evidence in her evolutionary studies of anomurans. Numerous papers were published during those productive Miami years, most prominently the multiple-part series revising *Paguristes* and the *Pylopagurus*-like group of species. During her time at RSMAS she also completed writing and published her dissertation (McLaughlin, 1974) and, as previously mentioned, her landmark, co-authored work on barnacles (Henry and McLaughlin, 1975). Her tenure at RSMAS ended dramatically in 1975. Her personal correspondence reveals that the University decided to terminate her employment based on accusations of incompetence. She fought this

unjust charge valiantly by both threatening legal action, and asking numerous senior carcinologists around the world to provide her with letters of support attesting to her qualifications, and she then presented these to the University of Miami Women's Council to plead her case. Pat still lost her job, but the charges of incompetence were retracted.

While at the University of Miami, Pat married Emmanuel J. McGeorge ("Mac"), the resident electrician at RSMAS. The two met, by Pat's own account, when "he came in [the laboratory] to change a light bulb one day" (The Miami Herald, Oct. 27, 1973). They moved into a small house in South Miami, which she and Mac extensively remodeled as a library and laboratory to allow Pat to comfortably conduct her research on crustaceans. Pat and Mac shared an interest in the breeding of dogs, especially standard and giant schnauzers, of which over the years they always kept several living in their house like any other family members. Undisturbed, Pat worked tirelessly, late and at all days and hours of the week, on her hermit crabs, which she patiently and exquisitely illustrated using ink line-drawings and stippling. Mac in turn, became proficient in photography and darkroom techniques, and often prepared the photographs for her publications. She named two new species after her husband: *Pylopagurus mackgeorgei*, and *Decaphyllus maci*. They remained happily married until Mac passed away tragically, after a long and debilitating illness, in February 9, of 1996.

After leaving RSMAS, Pat obtained a position as Courtesy Professor and Research Scientist at the Department of Biological Sciences, Florida International University (FIU), also in Miami, where she worked from 1975 until 1987. It was not a tenured position and depended on grants, and included teaching duties. During that period she also worked for two years (1975-1977) as sorting center director of a consulting firm, "Applied Marine Ecological Services, Inc.," which got her involved in various environmental studies in Florida in general, and Biscayne Bay in particular.

By this time in 1970s, Pat had already become one of the best-known specialists on hermit crabs in the world. It was also a time when there was a hermit crab pet craze in the U.S., and Pat was asked to serve as consultant for the "Great American Crab Company," which used a large *Coenobita* hermit crab named "Enormous" as their company mascot. For publicity, the company arranged for Pat to take "Enormous" to New York City to participate in a popular television show called "To Tell The Truth," a show that featured a panel of celebrities attempting to correctly identify a contestant who has an unusual occupation or experience, from impostors pretending to be the central contestant. "Enormous" and several other hermit crab companions, were crated, and off they flew with Pat to New York City, whereupon landing they were given a red carpet treatment, with assorted dignitaries that included Miss New York and members of the press. They were presented with a bouquet of roses by Miss New York, which

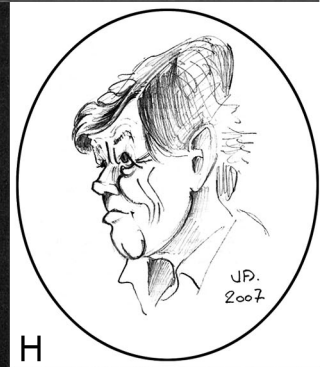
"Enormous" promptly proceeded to rip apart with the claws when Pat held the flowers close enough so the two could be photographed. In the hotel, the crabs were kept in the bathtub, and at the show studio, "Enormous" managed to pinch a stagehand. When it was Pat's time on the show, she and her impostors were obliged to state "My name is Patsy McLaughlin and I work on hermit crabs," and the panelists then had to ask questions to discover which was the real hermit crab expert. When the question was asked if hermit crabs and horseshoe crabs were members of the same family, Pat gave the only correct response, answering "no, horseshoe crabs belong with the spiders," and thus, she was identified by some of the panelists as the real hermit crab expert. She and "Enormous" returned home to Florida with a few prizes.

While at FIU, Pat published numerous papers, taught courses, and served as major professor for several students (including the author of this obituary), all the while overseeing various environmental studies. One of those studies was conducted at Anclote Anchorage and led to the discovery and description by her of a new species of Cephalocarida, the first known from the Gulf of Mexico: *Lightiella floridae* McLaughlin, 1976. It was at FIU where Pat completed her classic book "Comparative Morphology of Recent Crustacea" (McLaughlin, 1980), a spin-off that originated from a manual developed for her graduate lectures and laboratory sessions for her course "Biology of Crustacea." Her paper on the phylogeny of hermit crabs (1983) was the first ever use of cladistic methodology in any decapod group. She debunked the prevalent idea at the time that hermits were polyphyletic.

SEDRO-WOOLLEY YEARS (1987-2011)

When Pat's husband Mac retired from FIU in 1987, the couple quickly packed their belongings (Pat never liked south Florida) and moved to a house on a wooded property near Sedro-Woolley, Skagit County, Washington, some 105 km north of Seattle. It was a perfect setting for them to raise and enjoy their beloved schnauzers, and for Mac to attend his honey bees and other leisurely activities. There, Pat managed to get an unpaid position as a Visiting Scientist and Adjunct Professor with the nearby Shannon Point Marine Center (SPMC), Western Washington University, Anacortes, which lasted until her death. As she had previously done in south Florida, but this time surrounded by the majestic and serene surroundings of the Pacific Northwest, she settled to work in her house enclave where she kept a fully equipped laboratory and specialized crustacean library. With the advent of the internet, her place quickly became the world epicenter of hermit crab knowledge and consultation, and her home studio got filled to the brim, even more than before, with specimens from all over the world. Of the 193 papers (excluding encyclopedia articles) that she published, 153 (79%) were produced during the Sedro-Woolley years. As result she placed SPMC in the carcinological world map, even though she hardly ever used their facilities.

Fig. 1. Patsy A. McLaughlin, different periods of her life. A, at age 19; B, on deck of trawler "Mitkoff," circa 1960; C, on board "Anton Bruun," cruise 16, 1966; D, with schnauzer at Stuart-Fort Pierce, Florida, 1983; E, during Dora P. Henry's funeral service on board the R/V *Thompson*, with friends J. Armbrust (right) and G. Holm (center), May 3, 2002; F, at Paris Museum laboratory 2005; G, at Sedro-Woolley house after receiving dedicated copy of *Zoosytema*, with "EJ," 2006; H, caricature drawn at Paris Museum by French artist J.-F. Dejouannet, 2007.



In the early 1990s, Pat was invited to the “International Decapod Symposium” to be held in Frankfurt, Germany in 1993, and was asked to contribute a presentation on the subject of “carcinization in the Anomura” for a chapter in the introductory section of a book on “primitive crabs.” Pat knew this topic would be difficult and best done with two minds and a large institutional library close by, so she asked me to join her as co-author. She was never a fan of attending meetings, in fact despised talking in public, and thus I would be called upon to make the presentation for the meetings. Although the book was never published, our paper was, in a two-part series (McLaughlin and Lemaitre, 1997; McLaughlin et al., 2004). The study still generates controversy as it challenged the validity of the traditional view that hermit crabs (Paguridae, i.e., *Pagurus*) gave rise to king crabs (Lithodidae, i.e., *Lithodes* and *Paralithodes*) or “hermit to king” hypothesis, and proposed instead the reverse, that king crabs gave rise to hermit crabs or “king to hermit” hypothesis. This conclusion suited Pat’s character perfectly as she was no stranger to controversy, and in fact relished rattling the status quo when there was legitimate reason and evidence to do so. The second part incorporated new data on larval development of lithodids, and although molecular-based studies have since favored the traditional “hermit to king” hypothesis, the larval or morphological evidence presented in the “carcinization” papers have yet to be adequately addressed, and as a consequence, modern hermit crab phylogenies continue to be incongruent.

In the mid 1990s, Pat began a series of visits to Alain Crosnier’s laboratory at the Natural History Museum in Paris. Alain lured her with the prospect of working the new and abundant collections from French expeditions in the Pacific and western Indian Ocean. The collections were far beyond her expectations, and she enthusiastically dove into their study. Pat’s papers based on those collections transformed and increased exponentially our knowledge of paguroids from the Indo-West Pacific, and indeed the world over. On the taxonomic side of paguroids alone, her contributions are unequalled in the history of this group. Ultimately, she laid the foundation of our knowledge of the diversity and anatomy of hermit crabs, and in the process named (as sole author or jointly with collaborators), one family, 37 genera, and 163 species of paguroids. She named 30% of the current paguroid genera, and a remarkable 45% of the Paguridae alone. As result of her efforts, several colleagues organized and edited a special volume of the French journal *Zoosystema* [Lemaitre and Crosnier, 2006, vol. 26 (2)] to honor her contributions and career. It was to be the only major recognition she would ever receive in her life.

It was also during the 1990s when Pat acquired in Arizona from a breeder named Barbara Cetto, a schnauzer puppy that she named “EJ” (in honor of husband Mac’s first name initials). The puppy suddenly started to “write” weekly reports to her breeder titled “Letters Home,” which always began “Dear Barbara...”, and were mailed to all of Pat’s friends and correspondents, a rather numerous contingent that became addicted to the news. The letters included a detailed report of all that happened at the house from EJ’s canine perspective, including Pat’s scientific activities and

off-the-record comments. For several years the letters were mailed in paper, but eventually email arrived and the letters were broadcast electronically to friends around the world. Barbara eventually died, and the letters were then changed to “Sedro-Woolley letters,” issued in “installments” every Sunday. One day, “Lucy,” a female schnauzer, “stole” the laptop and began adding her female side of the canine story as well, and it became two letters. This went on for over 12 years for a total of 640 letters, without missing a single week, and these letters became a candid diary of Pat’s last years.

By the early 2000s, Pat’s health began to deteriorate. She required traumatic hip and knee replacements. Her eyes began to fail, and, those organs being her main working “tools,” she decided to undergo cataract operations on both eyes. However, surgery on the first eye was not very successful, and she decided to postpone surgery on the other eye. Soon her heart also began to show signs of weakness, and she had to endure many drugs and dose adjustments. Given that she lived alone and had no immediate family, she was looked after by generous neighbors and friends who cared and assisted her daily for many years until her death. Throughout these painful times, she never complained except to argue with the doctors about whether she needed medication at all (some of which she dismissively called “rat poison”), but she stoically continued, unabated, to work and even travel around the world to examine specimens in museums or even do field work, until her heart just grounded her and eventually stopped. Mercifully, death came quickly, just as she wanted it.

HER PERSONA AND LEGACY

To fully comprehend the impact of Pat McLaughlin’s work and accomplishments, one must start with the fact that she had a remarkably productive career with the support of relatively few grants and contracts, and without a formal salary or job for most of her life. She had no personal or family fortune, lived frugally, always depending on minimal income, which in her later years came primarily from her social security and her husband’s very modest pension.

Pat had an uncanny ability to get involved in big, tedious projects that required in-depth research or bibliographic searches, and actually finish them. Examples are the two editions of the “Common Names” (Williams et al., 1989; McLaughlin et al., 2005), the carcinization papers (McLaughlin and Lemaitre, 1996; McLaughlin et al., 2004), the paguroid fauna of New Zealand (de Saint Laurent et al., 2000; Forest and McLaughlin, 2000; Forest et al., 2000), the Taiwan catalogue of hermits (McLaughlin et al., 2007), and the anomuran checklist of the world (Boyko and McLaughlin, 2010; McLaughlin et al., 2010a, b, c; Osawa and McLaughlin, 2010).

Aside from her modest personality, sense of humor and generosity (both intellectual and material), Pat will be remembered, among many other reasons, for her productivity and unsurpassed knowledge of the anatomy of crustaceans, influential ideas about the evolution of anomurans (especially hermit crabs, on which she was the foremost world authority), superb writing, great intellectual honesty and scientific curiosity, a total dedication to promote the study of crus-

taceans, and immense love for her schnauzer dogs. She also leaves behind a long legacy of carcinologists and students around the world that she unselfishly helped and trained. She willed her personal hermit crab collections to the Department of Invertebrate Zoology, Smithsonian Institution.

However, no summary of Pat's life would be complete without admitting that her best potential employment years and career occurred during a male-dominated social era, when being a strong, opinionated woman, as she definitely was, would not favor employment, promotions, or easy intellectual participation. She was acutely aware of this from very early on in her career. In an interview for *The Miami Herald* (Oct. 27, 1973) she related that in 1955 she applied for membership to an academic organization called "Pacific Fishery Biologist" (PFB), and that the all-male membership "told me I couldn't come to their annual meeting because there were no accommodations for a woman." At that time, she said, "their practice was to put two persons in a room. Since there was only one woman, well..." Pat requested membership again the next year, and was again turned down. Finally, in 1957, PFB could not use the excuse of accommodations "because they were meeting in Seattle where I lived and I could go home overnight." Reluctantly, PFB then allowed Pat to become the first woman member; she said, "I kept my membership six years just for spite." Pat had to fight hard all her life to stand her ground to defend her ideas, and was successful, although she never was an activist. There is no doubt that history will judge her as a brilliant and outstanding carcinologists, one of the best that has existed in our field. She just happened to be a woman.

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APPENDIX

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