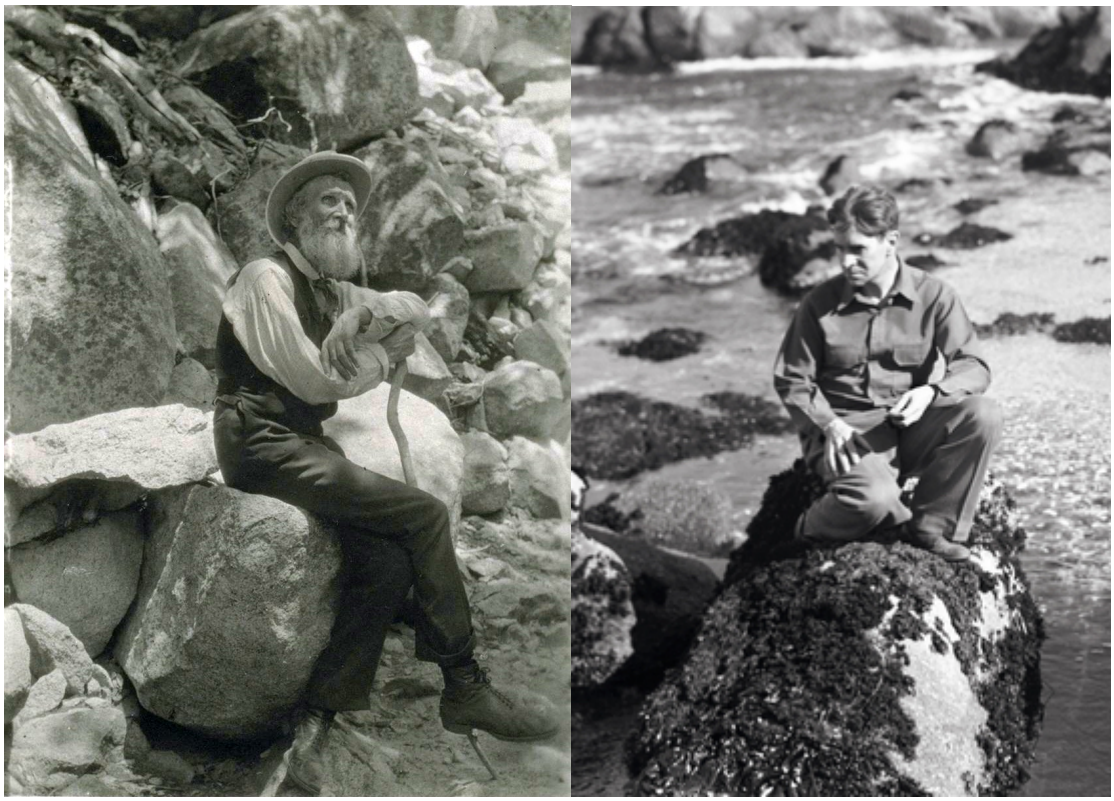
MUIR'S GLACIERS AND RICKETTS' TIDEPOOLS



 Donald G. Kohrs

MUIR'S GLACIERS AND RICKETTS' TIDEPOOLS

The following paragraphs consider the similarities between the lives of John Muir and Ed Ricketts, two of America's most celebrated naturalists. These similarities begin with the fact that both men spent their youth growing up in the heartland of America: Muir in Wisconsin and Ricketts in Illinois. In addition, both attended a major academic university, but neither received a college degree: Muir attended University of Wisconsin - Madison and Ricketts attended the University of Chicago. Both men were mentored by prominent academic scientists: John Muir's principal mentors included University of Wisconsin's Professor Ezra Slocum Carr, his wife Jeanne Smith Carr, Harvard Professors Louis Agassiz and Asa Grey, while Ed Ricketts' principal mentors included University of Chicago's Professor Warder Clyde Allee, Uppsala University of Sweden's Professor Torsten Gislén and Stanford University's Professor Walter K. Fisher.

Another similarity is the extended hike taken from Indianapolis, Indiana through the Southeastern part of the United States to Savannah, Georgia, which both men independently chose to experience. Muir started his hike in September 1867 when he was twenty-eight years old, whereas Ricketts started his hike in November 1921 when he was twenty-four years old. Both men wrote a remembrance of their walk; Muir in his book *A Thousand-Mile Walk to the Gulf,* and Ricketts in his published article *Vagabonding Through Dixie.*

Yet another parallel in the life of Muir and Ricketts is their permanently moving west to California. Muir arrived in San Francisco, seven months after initiating his trek from Indiana; Ricketts arrived in Pacific Grove, two years after initiating his trek from Indiana though the Southern states.

After relocating to California both men quickly established themselves as respected naturalists in their field of study. As a scientist, John Muir became absorbed with validating the scientific hypothesis of glaciation as an explanation for the formation of Yosemite Valley. Captivated with understanding glaciation, Muir traveled through the Inside Passage of the Pacific Northwest to Alaska where he observed - in real time - the process of landscape formation by glacial activity.

Ed Ricketts, as a scientist, became immersed in understanding the marine ecology associated with the littoral zone of the Pacific coast. Ricketts was so engaged with understanding the processes that shape the ecology of coastal marine habitats that he traveled through the Inside Passage of the Pacific Northwest to Alaska to broaden his perspective. Collecting trips to the outer shores of the Pacific Northwest of Canada and Alaska and to the Gulf of California provided Ricketts with the most comprehensive understanding of the habits and habitats of the seashore invertebrates of the Pacific Coast.

Both men, while engaging in their passion for scientific study, witnessed the negative environmental impact of human activities. Muir witnessed not only the destructive impact of illegal lumbering[1], but the disastrous effects of overgrazing by sheep[1] and hydraulic mining[2] to his beloved high Sierra region. Ricketts personally observed the detrimental impact of harbor dredging and breakwater construction in Southern California's Newport Bay,[3, 4] and the unnecessary loss of marine life (i. e. bycatch) resulting from destructive fishing practices in the Sea of Cortez.[5]

John Muir and Ed Ricketts were both inexhaustible readers, which allowed them to become extremely well read. Their exhaustive practice of reading the written word led each to gather a sizeable personal library. A significant portion of each of their library collections pertained to the natural sciences; Muir's emphasis was placed on the subjects of geology and botany while Ricketts' emphasis was placed on the seashore biology and ecology of the Pacific coasts. In addition to these subjects, both Muir's and Ricketts' library collections contained the European and American Classics, World History, Religious Studies, and the literature of the Transcendentalists.

Muir and Ricketts published works were written for the scientist and layman alike, which enabled the popularization of their ideas among a wide audience. Muir popularized the theoretical ideas associated with glaciation while Ricketts' introduced the theoretical ideas related to intertidal ecology. With these similarities in mind, the following paragraphs consider the life paths of these two celebrated naturalist on the individual level.

JOHN MUIR

"*When we try to pick out anything by itself we find that it is bound fast by a thousand invisible cords that cannot be broken, to everything in the universe.* "

-- John Muir

John Muir (April 21, 1838 – December 24, 1914) was a Scottish-American naturalist, author, and early advocate of the preservation of wilderness in the United States. The first decade of John Muir's life was spent in Dunbar, Scotland. When he was three years old, Muir entered the Davel Brae primary school. At the age of seven, John Muir enrolled at the Dunbar Grammar School where he was taught Latin, French, English, mathematics, and geography.

In 1849, Muir's family immigrated to America, settling on homestead land that they named Fountain Lake Farm in Marquette County, Wisconsin. From age eleven to twenty one, John Muir labored on the family farm. During this period, though he could not attend a formal school, Muir - through independent study - extended his education in mathematics, geometry, literature, and philosophy.

In February 1861, at the age of twenty-two, Muir enrolled at the University of Wisconsin, where he took courses for several years, before leaving without a degree. During his attendance, Muir participated in a geology course taught by Professor Ezra Carr, who was a former student of the famous Swiss-born American scientist Louis Agassiz. It was during this course in geology that Muir was introduced to Agassiz's theory of glaciation, and the Harvard Professors' inductive method of observational study.

In September 1867, at the age of twenty-nine, Muir undertook a walk of 1,000 miles from Indiana to Florida, which he recounted in his book, *A Thousand-Mile Walk to the Gulf.* In March 1868, Muir arrived in San Francisco, having traveled by steamship from New York via Panama. Within a month of his arrival, he had journeyed to the High Sierra mountain range to view the granite walls that rimmed the Yosemite Valley and considered taking up a serious study of Sierra Geology.

Gripped with a yearning to understand the geological bases for the distribution of the granite he observed in the mountains, Muir returned to the Yosemite Valley in November of 1869, where he remained for the next several years. By applying the scientific practice of observational study, detailed note taking and hand sketching - Muir, by August of 1870, had confirmed the importance of glaciers in the formation of Yosemite Valley. In September of 1871, he sent his first article "*Yosemite Glaciers*" to New York Tribune for publication. The text of this article was unique as it was written in nontechnical language, allowing the concepts to be understood by scientists and laymen alike. During the next decade, Muir devoted significant time to researching in-depth the geological activity associated with his beloved Sierra mountain range.

Overwhelmed by a desire to further understand the process of glaciation, Muir traveled to Alaska in 1879 to observe present-day landscape formation by glacial activity. The route that Muir traveled on this trip traversed the Inside Passage—a coastal route extending from northwestern Washington State, through western British Columbia, to southeastern Alaska. During the excursion, Muir was introduced to the indigenous Tlingit tribes of Alaska, whom he came to respect for their wisdom, humility and deep connection with nature. The Tlingit paddlers accompanying him as the first white explorer to view Glacier Bay, named Muir “The Great Ice Chief.”

Muir's contribution to science extends beyond glaciation to the field of botany. During 1873 and 1874, he studied the distribution and ecology of isolated groves of Giant Sequoia along the western flank of the Sierra. In 1876, the American Association for the Advancement of Science published Muir's paper *On the Post Glacial History of the Sequoia Gigantea* outlining his results from the study. In addition to this study, Muir collected plant specimens for Asa Grey, several of which the Harvard Professor named after Muir: *Erigeron muirii* (Muir's fleabane) and *Ivesia muirii* (Granite Mousetail).

The lack of a college degree did not diminish Muir's thirst for knowledge. In his youth and throughout his adult life, he was a voracious reader. His yearning for knowledge is evident in the exceptionally large personal library. A significant portion of his collection of monographs pertained to the natural sciences, with a particular emphasis on the subjects of geology and botany. In addition to these subjects, Muir's library

collection contained the literature of the European and American Classics, World History, Religion, and the Literature of the Transcendentalists.

John Muir's quest for an education resulted in his being influenced by many academic scientists including Ezra S. Carr, and his wife Jeanne C. Carr, Louis Agassiz, Alexander Von Humboldt, Arnold Henry Guyot, James Forbes and Asa Grey; the early American poets, William Cullen Bryant, Ralph Waldo Emerson, Henry David Thoreau and Walt Whitman; American landscape painters, William Keith, John Joseph Ivey, and Raymond Dabb Yelland. As evidenced in his collection of personal letters and notebooks, Muir had a vast amount of personal and direct communication with many esteemed scientists, poets and artists.

John Muir published important works that influenced the direction of environmentalism and conservation biology in the United States. Muir's list of publications is extensive, taking the format of magazine and newspaper articles begin with *Yosemite Glaciers*, which appeared in the New York Tribune, December 5, 1871; numerous books including *Picturesque California and the Region West of the Rocky Mountains, from Alaska to Mexico* (Published in series 1888 - 1890); *The Mountains of California* (1894); *Our National Parks* (1901) and Stickeen (1909); and a significant number of unpublished journals and letters of correspondences. In the years after his passing, several of the manuscripts and letters of correspondences authored by John Muir were presented in the following books: *The Life and Letters of John Muir*, by William Frederic Badè (1924) and *John of the Mountains: The Unpublished Journals of John Muir* edited by Linnie Marsh Wolfe (1938).

Unbeknownst to many scholars is the fact that Muir's fear of speaking to large audiences limited him to presenting just a handful of formal public lectures. Fortunately, his writings received wide circulation in the major newspapers and popular periodicals of the day. Reaching a wide audience, Muir's writings advanced our understanding of the geological process known as glaciation, and popularized the idea of wilderness preservation.

EDWARD F. RICKETTS

"Each higher order, instead of ruling the ranks of the individual below, is actually ruled by them. Each rank is completely at the mercy of its subjects, dependent on their abundance or accessibility. All the schemes which our social order prides itself on having discovered have been in use by societies of marine animals far back into the dim geological past."

-- Ed Ricketts, *Between Pacific Tides*

Edward Flanders Robb Ricketts (May 14, 1897 – May 11, 1948) was an American ecologist, philosopher, and an early voice for marine conservation in the United States. Excluding one year that his family spent living in Marshall, North Dakota, Edward F. Ricketts was raised in Chicago, Illinois, graduating from the west side's John Marshall High School in 1914. Next, Ricketts enrolled in the Illinois State Normal University where stayed for one year. In 1917, he was drafted into the U.S. Army Medical Corps, which resulted in a short tour of duty that extended from November 1918 to March 1919. During the summer of 1919, Ricketts enrolled in the University of Chicago, where he sporadically registered in coursework over the next three years.

In September of 1921, at the age of twenty-four, Ed began a four-month trek through the Southeast that traversed through Indiana, Kentucky, North Carolina and Georgia. Often compared to John Muir's *Thousand-Mile Walk to the Gulf*, this hiking adventure was later remembered by Ricketts in a short article titled *Vagabonding Through Dixie,* published June 1925 in the magazine *Travel*.

Upon completing his trek through the South, Ed Ricketts returned to the University of Chicago, where he continued to select classes in biology for his college education. In the fall of 1922, he enrolled in his final academic course of instruction, a senior level class titled animal ecology, taught by Professor Warder Clyde Allee.

In the fall of 1923, at the age of twenty-six, Ricketts left Chicago and relocated to Pacific Grove, California. Within a few years of his arrival, he had established himself as the owner and operator of the Pacific Biological Laboratories; a biological supply company that provided biological specimens for education and research. Beyond the business of collecting marine invertebrates, Ricketts was gripped with a yearning to

understand the ecological basis for the distribution of marine invertebrates along the Pacific coast. In 1930, this yearning led to a proposal from Ricketts and Jack Calvin to Stanford University Press for the publishing of a simple handbook providing an account of the habits and habitats of some five hundred of the common, conspicuous seashore invertebrates of the Pacific Coast between Sitka, Alaska, and Northern Mexico. The classification of the organisms was to be unique, with the animals presented according to their ecological distribution - by habitat and tidal zone.

As early as 1930, his insatiable curiosity to understand the intertidal ecology of the Pacific shores led Ricketts, in the company of Jack Calvin, to the Pacific Northwest to collect invertebrates and observe the shoreline. For their trip in 1932, the two authors explored and collected specimens along the Inside Passage, traveling north from Puget Sound to Juneau, Alaska. During this trip, Ricketts recognized Sitka Sound as an ideal location to compare the impacts of wave action on different habitats within the intertidal. In Alaska, one finds Edward F. Ricketts learning not just from his shoreline studies, but from first nation tribes - the Haida, Tlingit, and Kwakiutl - whose close connection with nature he greatly respected.

Like John Muir, Ricketts' lack of completing his college education did not diminish his thirst for knowledge. Nor did the lack of a college degree diminish Ricketts' ability to conduct scientific research, as he worked toward understanding how variations of wave shock, tidal exposure, and varying habitat contribute to the distribution of invertebrate species along the expansive Pacific coast of North America.

Ricketts' specific interest in the distribution of animals along the Pacific shores led him to gather an extensive scientific library in the subject areas of marine invertebrate zoology and marine ecology. As with Muir, Ricketts' interests were not limited to the natural sciences. The shelves of his personal library contained monograph titles of the European and American classical & romantic literature, Eastern & Western philosophy and depth psychology. His collection held the works of a wide range of poets and an extensive set of literature related to music and art history.

Ricketts was influenced by a long and diverse list of scientists: Addison E. Verrill, Warder C. Allee, Victor E. Shelford, Torsten Gislén, and George MacGinitie; poets: Ralph Waldo Emerson, Henry David Thoreau, Walt Whitman, Matthew Arnold,

William Blake, Robinson Jeffers, Li Po; musicians: including Claudio Monteverdi, John Cage and Uday Shankar; and painters: George Inness, El Greco, Pierre-Auguste Renoir, Michelangelo, Leonardo De Vinci and Paul Klee. As evidenced in his collection of personal letters, Ed Ricketts had an immense amount of personal and direct communication with not only leading scientists in the fields of invertebrate zoology and marine ecology, but literary authors, artists, poets and musicians.

Like Muir, Ricketts' devoted himself to the study of nature, conducting science through observational inquiry. Applying the skills of patient observation, detailed note taking and free hand sketching, Ricketts was able to notice the subtleties in nature that casual observers typically overlook. His long and careful observations of the habits and habitats of marine invertebrates allowed Ricketts to recognize the interconnectedness of the communities on a holistic level.

As with Muir, Ed Ricketts' published writings have influenced the direction of environmentalism and conservation biology in the United States. EF Ricketts' list of publications include two *Pacific Biological Laboratories* catalogs (1925) and (1929); *Between Pacific Tides: An account of the habits and habitats of some five hundred of the common, conspicuous seashore invertebrates of the Pacific Coast between Sitka, Alaska, and Northern Mexico* (1939) by EF Ricketts and Jack Calvin; *The Sea of Cortez* (1941) by John Steinbeck and EF Ricketts; and the revised edition of *Between Pacific Tides* (1948) by EF Ricketts and Jack Calvin. In addition EF Ricketts authored three articles that appeared in the Monterey Peninsula Herald: (1) *Ed Ricketts covers the waterfront for 20 years*, Monterey Peninsula Herald, 7th Annual Sardine Edition, February 27, 1942; (2) *Science Studies the Sardine,* Monterey Peninsula Herald, 12th Annual Sardine Edition, March 7, 1947; (3) *Investigator Blames Industry, Nature for shortage,* Monterey Peninsula Herald, 13th Annual Sardine Edition, April 2, 1948. Beyond these published works there exists a significant number of EF Ricketts' unpublished journals and correspondence.

In the years after his death, several of the manuscripts and letters of correspondences authored by Ricketts' have been presented in the following books: *Outer Shores* (1978) and *Outer Shores 2: Breaking Through* (1979), Edited with Commentary by Joel W. Hedgpeth; *Renaissance Man of Cannery Row: The Life and*

Letters of Cannery Row, Breaking Through: Essays, Journals, and Travelogues of Edward F. Ricketts. Edited with Commentary by Katharine A. Rodger, (2003); *Breaking through: essays, journals, and travelogues of Edward F. Ricketts.* Edited with Commentary by Katharine A. Rodger, (2006).

As was the case for John Muir, EF Ricketts became a well-respected naturalist who lacked academic credentials. He never once presented a lecture to a public or private audience. Yet, with his two co-authored books and three newspaper articles that appeared in the Monterey Peninsula Herald, Ricketts was able to stimulate public interest in the marine ecology, and ultimately strengthen the movement for conservation of the marine environment.

Acknowledgements:

Thanks to Steven and Mary Albert, Robbie Behrens, Larry Frisch, Felicia King, Dave Pawson, John Pearse, and Steven Webster for their knowledgeable suggestions and helpful editing recommendations.

FOOTNOTES

1. Muir, John (1898). From *The Wild Parks And Forest Reservations Of The West*. The Atlantic Monthly, Volume 81, Issue 483, January 1898 Atlantic Monthly Company.

"*The forty million acres of these reserves are in the main unspoiled as yet, though sadly wasted and threatened on their more open margins by the axe and fire of the lumberman and prospector, and by hoofed locusts, which, like the winged ones, devour every leaf within reach, while the shepherds and owners set fires with the intention of making a blade of grass grow in the place of every tree, but with the result of killing both the grass and the trees."*

2. Muir, John (1876). From Prospectus of the Cataract and Wide West Hydraulic Gravel Mining Co. San Francisco: Fluto & Co., 1876, pg. 4-6.

"*the hills have been cut and scalped and every gorge and gulch and broad valley have been fairly torn to pieces and disemboweled, expressing a fierce and desperate energy hard to understand."*

3. Ricketts, Edward F. (1932). From a letter written by E. F. Ricketts to Torsten Gislén May 27, 1932. [Torsten Gisléns archive, Lund University Library]

On our last trip down there we collected at Newport Bay, Ensenada, Ensenada estuary and Boca de la Playa, in the head of the Santa Tomas Valley. The Newport Bay region has changed around considerably due to the influx of sand and the change of currents incident to harbor dredging and breakwater work. The Gorgonian Muricea that I found on the rocky shores near the station seems completely to have disappeared, and this is a pity because it was the most northerly representative of a species very common in Panama. If something isn't done to protect that region from depredations of hungry Italians and Chinese people I am afraid there will be nothing macroscopic left to turn up.

Lund University Library, E. F. Ricketts to Torsten Gislén May 27, 1932. [Torsten Gisléns archive, Lund University Library]

4. Ricketts, Edward F. (1942). From a letter written by E. F. Ricketts to Waldo L. Schmitt March 11, 1942

Lord only knows we do enough to upset biological and topographical equilibria in smaIl ways. Every breakwater or harbor dredging project is proof of that. Maybe now we're doing it in a big way there.

Record Unit 307: National Museum of Natural History, Division of Crustacea Records, circa 1908-1979, Box 37, Folder 9. [E. F. Ricketts to Waldo L. Schmitt March 11, 1942]

5. Steinbeck, John and Ricketts, Edward F. (1941). From *Sea of Cortez; a leisurely journal of travel and research, with a scientific appendix comprising materials for a source book on the marine animals of the Panamic faunal province*.

"*We take a tiny colony of soft corals from a rock in a little water world. And that isn't terribly important to the tide pool. Fifty miles away the Japanese shrimp boats are dredging with overlapping scoops, bringing up tons of shrimps, rapidly destroying the species so that it may never come back, and with the species destroying the ecological balance of the whole region. That isn't very important in the world. And thousands of miles away the great bombs are falling and the stars are not moved thereby. None of it is important or all of it is*."

