

Charles Darwin: The Beagle Years (1831-36)

By Harry Wistrand



Harry Wistrand received his Ph.D. from Arizona State University and did postdoctoral work at Yale University.

From 1974-2012 he served as Professor of Biology at Agnes Scott College, where he was Department Chair, Associate Dean of the College, and founding Co-Director of the Program (now Department) of Public Health and the Program in Environmental and Sustainability Studies. His scholarly interest is evolutionary genetics.

After retiring, he moved to Richmond, Virginia, where he gives talks on genetics and evolution. He has been a member of the Richmond Torch Club and has presented several papers to the club as well as other organizations in Richmond. An earlier paper, "Charles Darwin: The Formative Years," appeared in the Spring 2018 issue of *The Torch*.

"Charles Darwin: The Beagle Years" was presented to the Richmond Torch Club on February 13, 2018.

He may be reached at
harrywistrand@gmail.com.

In an earlier article, in the Spring 2018 issue of *The Torch*, we saw that Charles Darwin had several characteristics that hinted at his future success: his upbringing, his gentle nature, his intelligence, and some serendipitous events and friendships (Wistrand). At the end of the article, the 22-year-old Charles had just accompanied Professor Adam Sedgwick on a geological expedition to Wales, a responsibility he had taken on at the urging of his Cambridge mentor, the Reverend John Stevens Henslow. It was late summer, 1831.

Back in Shrewsbury, his hometown, Darwin had to deal with a father impatient at his lack of progress towards ordination as a clergyman in the Church of England—the goal, supposedly, of his Cambridge education. In his *Autobiography* he wrote:

I found a letter from Henslow, informing me that Captain Fitz-Roy was willing to give up part of his own cabin to any young man who would volunteer to go with him without pay as naturalist to the Voyage of the "Beagle".

Darwin was well prepared for such an endeavor as a naturalist.

He was ambitious, had matured intellectually at Cambridge, gaining confidence from luminaries such as Alexander von Humboldt, William Paley, and William Herschel¹. He had learned botany and geology from eminent scientists and his self-taught entomology and ornithology far surpassed that of his peers. He had physical and social abilities which would serve him well. Nonetheless, such a journey was scarcely conceivable. Darwin recognized that he would for some number of years be without his family and friends, with possible adversity, seasickness, loneliness, and isolation on a lengthy odyssey. Darwin was available because he was single, not employed, and had access to considerable funds.

So began a voyage that would be decisive for human understanding of the natural world.

* * *

The captain of the *Beagle*, Robert Fitzroy, was of aristocratic stock and had graduated first in his class at the Royal Naval College. He needed a companion on the *Beagle*. He could not risk his command by being open with his subordinates, but the isolation at sea could be psychologically disastrous. By taking a cultivated, educated dining

companion who was not under his command, Fitzroy could find relief while on board. To entice a gentleman to join his voyage, he offered an opportunity to explore as a naturalist.

Darwin noted in his *Autobiography* that Fitzroy was “devoted to his duty, generous to a fault, bold, determined, and indomitably energetic, and an ardent friend to all under his sway. He would undertake any sort of trouble to assist those whom he thought deserved assistance” (50). “His character was in several respects one of the most noble which I have ever known,” Darwin asserted, while also noting that “Fitz-Roy's temper was a most unfortunate one. It was usually worst in the early morning, and with his eagle eye he could generally detect something amiss about the ship, and was then unsparing in his blame” (51). On the voyage, many officers begged Darwin not to get into disagreements with Captain Fitzroy, because he usually took it out on them and the crew.

The *Beagle* was a small vessel (90 feet by 24 feet), easily maneuverable in harbors. Darwin shared a cabin (chart room about 10 feet by 11 feet) with two other members of the crew: “[t]he corner of the cabin, which is my private property, is most wofully [sic] small.—I just have room to turn round & that is all” (qtd. in Brown 170). In the chart room was a library of about 250 books, including atlases, dictionaries, Bibles, novels, travel narratives, volumes on biology, geology, and Darwin's treasured *Paradise Lost*,

Humboldt's *Travels* (a gift from Henslow), and Lyell's *Principles of Geology* (a gift from Fitzroy).

The *Beagle* departed Plymouth on December 27, 1831, after a two-month delay. Darwin immediately became seasick (a condition that would accompany him for the next five years) and homesickness was evident in his letters home throughout the voyage.

* * *

After the *Beagle* had been voyaging towards South America for a few weeks, Fitzroy reported to Captain Beaufort, his superior officer:

Darwin is a very sensible, hard-working man and a very pleasant messmate. I never saw a ‘shore-going fellow’ come into the ways of a ship so soon and so thoroughly as Darwin. I cannot give stronger proof of his good senses and disposition than by saying ‘Everyone respects and likes him.’ (qtd. in Bowlby 157)

Officers on the *Beagle* bequeathed the nickname “Philos” on Darwin, derived from Natural Philosopher, after he established himself as a scientific authority, as well as “Flycatcher” because of his propensity for insect collecting. He endeared himself to shipmates as he was always willing to go ashore and do more than his share of the physical work. His hunting skills often resulted in additional fresh meat for the crew. Darwin learned to set sails and in an impressive

display of seamanship, the *Beagle* crew took the sails down and immediately set them again with perfection. A midshipman, Philip Gidley King, recalled:

Though Mr. Darwin knew little or nothing of nautical matters he one day volunteered his services to the First Lieutenant. The occasion was when the ship first entered Rio Janeiro. It was decided to make a display of smartness in shortening sail before the numerous Men-of-War at the anchorage [...] Mr Darwin was told off to hold to a main-royal sheet in each hand and a top-mast studding-tack in his teeth. At the order “Shorten sail” he was to let go and clap on to any rope he saw was short handed— this he did and enjoyed the fun of it often afterwards remarking “the feat could not have been performed without him”. (van Wyhe)

Lieutenant John Wickham was on excellent terms with Darwin. On the third voyage of the *Beagle*, Wickham replaced Fitzroy as commander (Fitzroy had been appointed Governor-General of New Zealand), and in tribute to his friend Darwin, named the Australian port in his honor.

The *Beagle* finally arrived at Bahia, Brazil, and Darwin took every opportunity to explore and collect specimens, which were sent back to England, usually in care of Henslow. As he was a free agent, he was able to travel at

will. He enlisted a member of the crew, Syms Covington, to help him collect and prepare specimens. Darwin was not only collecting biological specimens and fossils, but actively observing the geology he encountered and speculating about changes. His geological theories actually predated his biological theories.

Why would God create two different species when their habitats differed only slightly?

Darwin also displayed heroism during the voyage. While undertaking hydrographic studies in Tierra de Fuego during January 1833, the whale/survey boats were often utilized, sometimes at great distance from the *Beagle*. A crew including Darwin was ashore when a large icefall from a glacier landed in the water and large waves headed towards the whaleboats. Darwin saw this and rushed to the boats with three others and pulled the boats out of the water, at considerable danger to themselves. Darwin felt that he had responded due to fear instead of bravery, stating in his *Diary*, “how dangerous our lot would have been, surrounded on all sides by hostile Savages & deprived of all

provisions” (Keynes 173). Fitzroy witnessed the feat and on the next day, he named the passage Darwin Sound. The next year, on Darwin's 25th birthday, Fitzroy indicated his affection for Darwin by naming the highest peak in the mouth of the sound Mount Darwin.

Darwin spent as much time as he could on land. Of the five-year voyage, he spent about sixty-three percent of the time away from the *Beagle*. His longest stretch at sea was forty-seven days. Of his thirty-seven onshore excursions, only five were less than two weeks, and there were excursions in Chile of one and two months. In 1833, he was able to spend seven consecutive months exploring primarily in Argentina and Uruguay. Sometimes he would return to the *Beagle* at the point where he disembarked, and on other occasions, he arranged to meet the ship at a different port.

* * *

Nine months into the trip, Darwin found a very large skull and jawbone of what was determined to be a previously undiscovered horse-sized giant armadillo. Darwin began to ponder the strange fossils. He noted that there were many large animals and wondered why they died out. Also, the extinct organisms were similar to living organisms, except for their size.

While in Argentina, he heard reports of a different ostrich-like bird, the rhea, smaller than the well-known rheas. He set out to find it and finally came across the bird, being served for his dinner! Next to the fire, he was able to

identify part of the bird, recalling in the *Voyage of the Beagle*:

This species occurs most rarely on the plains bordering the Rio Negro; but about a degree and a half further south they are tolerably abundant. When at Port Desire, in Patagonia (lat. 48°), Mr. Martens shot an ostrich; and I looked at it [...] and thought it was a not full-grown bird of the common sort. It was cooked and eaten before my memory returned. Fortunately the head, neck, legs, wings, many of the larger feathers, and a large part of the skin, had been preserved; and from these a very nearly perfect specimen has been put together, and is now exhibited in the museum of the Zoological Society. Mr. Gould, in describing this new species, has done me the honour of calling it after my name.

He contemplated why the north and south of Patagonia would have different forms of the same bird. Why would God create two different species when their habitats differed only slightly and they overlapped in part of their range?

While the *Beagle* was undergoing two months of repairs in Valparaiso, Darwin headed for the Andes. Heading south from Valparaíso, Darwin saw two volcanos erupt and experienced a major earthquake a few days later. He thought this was the most interesting experience on the entire

journey. The earthquake had raised the beach by more than eight feet, leaving shellfish exposed above the high tide line. He began to comprehend the powerful forces of geology in reshaping the landscape. He continued inland and found shells and fossilized marine organisms high in the mountains. He realized that these organisms had been elevated by geological forces.

In September 1835, almost four years after leaving England, the *Beagle* sailed for the Galápagos islands. Darwin looked forward to the islands as they were volcanic and had organisms found nowhere else in the world. The *Beagle* spent five weeks charting the islands, and Darwin spent almost three of those weeks ashore.

Responding to an inquiry about the islands' tortoises, the governor told Darwin that one could tell which island they came from by the shape of their shells. Darwin was intrigued by why they would differ from island to island and formulated a hypothesis relating their feeding habits to the shapes of the shells. He collected many types of animals, and noted the mockingbirds were different on the islands he encountered. He acquired specimens of finches; thinking they were variations on the mainland species, he did not carefully note the island on which each was collected. Darwin only mentioned finches once in his *Beagle Diary* and never in *The Origin of Species*. It was not until his return to England, where an ornithologist pointed the out to him differences among the specimens,

that Darwin was aware that each was a different species.

* * *

The *Beagle* left the Galápagos and sailed to Tahiti and New Zealand. In Australia, Darwin saw many strange animals, including kangaroos and platypus. Later, he wrote in his *Beagle Diary*: "An unbeliever in everything beyond his own reason, might exclaim 'Surely two distinct Creators must have been [at] work.'"

After Australia, in the Keeling Islands, where through some hard work and constant soundings by the survey boats, Darwin was able to correctly deduce the method of coral reef formation, contrary to what contemporary geologists had believed.

The *Beagle* proceeded to Cape Town and then to Saint Helena, Ascension. In his *Autobiography*, Darwin wrote:

Towards the close of our voyage I received a letter whilst at Ascension, in which my sisters told me that Sedgwick had called on my father, and said that I should take a place among the leading scientific men. I could not at the time understand how he could have learnt anything of my proceedings, but I heard (I believe afterwards) that Henslow had read some of the letters which I wrote to him before the Philosophical Society of Cambridge, and had printed them for private distribu-

tion. My collection of fossil bones, which had been sent to Henslow, also excited considerable attention amongst palaeontologists.

Darwin utilized the journey home to organize his notes and thoughts. He continued to catalogue his specimens and ponder the variations. One of the most telling statements in his *Beagle Diary* reveals his observations in the Galapágos was leading him to question the fixed nature of species:

When I recollect the fact, that from the form of the body, shape of scales & general size, the Spaniards can at once pronounce from which Isd. [i.e., Island] any tortoise may have been brought: — when I see these Islands in sight of each other and possessed of but a scanty stock of animals, tenanted by these birds but slightly differing in structure & filling the same place in Nature, I must suspect they are only varieties. [...] If there is the slightest foundation for these remarks, the Zoology of Archipelagoes will be well worth examining; for such facts would undermine the stability of species.

The *Beagle* arrived in England on October 2, 1836. When the voyage concluded, Charles Darwin had 368 pages of zoology notes, almost 200 pages of notes on clams, barnacles, etc., 1383 pages of geology notes, a 770-page diary, and over 5400 specimens, many of which had been mailed or shipped

home during the voyage.

* * *

The large fossils made Darwin famous in scientific circles. While he was still on the voyage, a letter from Henslow had caught up to him, informing of the sensation that specimens were creating. His interest in joining the clergy, already diminished, dwindled further. After his family learned of his accomplishments, they retreated from suggesting a parsonage in their letters. In her book *Voyaging*, science historian Janet Browne writes, “The process of abandoning a church career that took place during the *Beagle*'s travels around the world was gradual, gentle, and silent; it was barely chronicled in his diary and letters” (322). It became clear to all that the clergy was no longer an option, but a professorship at Cambridge might be a possibility.

His thinking on species was beginning to take shape. However, it would take him twenty-three years to publish his ideas in the *Origin of Species*.

Concluding, we can identify what characteristics of Darwin made this voyage successful. He was inquisitive, inspired by Alexander von Humboldt and others, ambitious with a great desire,

analytical and contemplative. He was a prolific note-taker and letter writer, a thorough journal writer with excellent command of the language, and an avid collector with an extensive knowledge of geology, botany, and zoology. He was well-bred, friendly, and possessed of physical ability and courage. He had no wife or children to keep him from traveling, a supportive family, and a wealthy father who underwrote his considerable expenses. Stephen Jay Gould wondered “How different would the science of Biology be today if Darwin had been the offspring of a tradesman and not the son of a very wealthy physician?” (31).

NOTE

¹ For more discussion of the remarkable Alexander von Humboldt, see Fred Oppenheimer's article on him in the Fall 2018 issue of *The Torch* (vol. 92, no. 1), pages 18-23 (editor's note).

WORKS CITED & CONSULTED

- Bowlby, John. *Charles Darwin: A New Life*. NY: Norton, 1990.
 Browne, Janet. *Charles Darwin: A Biography. Vol. 1: Voyaging*. NY: Knopf, 1995.
 Clark, Ronald W. *The Survival of Charles Darwin*. NY: Avon, 1986.
 Darwin, Charles. *The Autobiography of Charles Darwin, 1809-1882*. Francis Darwin, ed. Project Gutenberg, 2013.
 —. *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*. London: John Murray, 1859.

- . *The Voyage of H.M.S. Beagle (Journal of Researches)*. NY: Heritage Press, 1957.
 Darwin Correspondence Project (online) U of Cambridge.
<https://www.darwinproject.ac.uk/>
 Desmond, Adrian and James Moore. *Darwin*. London: Penguin, 1992.
 Gould, Stephen Jay. *Ever Since Darwin*. NY: Norton, 1977.
 Keynes, Richard Darwin, ed. *Charles Darwin's Beagle Diary*. Cambridge UP, 2001.
 Leff, David. *About Darwin.com*.
<https://www.aboutdarwin.com/>
 Quammen, David. *The Reluctant Mr. Darwin: An Intimate Portrait of Charles Darwin and the Making of His Theory of Evolution*. NY: Norton, 2006.
 Stott, Rebecca. *Darwin and the Barnacle: The Story of One Tiny Creature and History's Most Spectacular Scientific Breakthrough*. NY: Norton, 2003.
 Thomson, Keith. *The Young Charles Darwin*. New Haven and London: Yale UP., 2009.
 van Wyhe, John, ed. *The Complete Work of Charles Darwin Online* (<http://darwin-online.org.uk>). 2002.
 Weiner, Jonathan. *The Beak of the Finch*. NY: Knopf, 1994.
 Wistrand, Harry. “Charles Darwin: The Formative Years (1809-31).” *The Torch* Vol. 93, no. 1 (Spring 2018), 11-16.
 Wulf, Andrea. *The Invention of Nature: Alexander von Humboldt's New World*. NY: Knopf, 2015.

SUBMISSIONS

The Torch publishes papers presented at affiliated Torch Clubs. Submissions may be addressed to torch.magazine.editor@gmail.com. Torch papers submitted to the magazine for publication can be accepted only via email from the author's club secretary or treasurer to verify that the author is a club member and presented the paper at that club. No submission form will be necessary. Hard copies are not accepted.