

Darwin on Fire

Len Yanielli

“The force of impression generally depends upon preconceived ideas . . .”
– Charles Darwin (*Darwin 1845, 503*)

INTRODUCTION

In the Chilean summer of 2002, I looked out a small window to see the legendary swirling winds of Tierra del Fuego bend baby beach trees like a child would an unwilling soda straw. Wisps of foggy mists were swept along by the wild tumult. Sitting in the home of a family celebrating our expedition time on Isla Navarino, two thoughts simultaneously entered my mind, one of immediate concern and one of historical note.

The former was straightforward. Would our plane be able to take off from the island’s tiny airstrip without being unceremoniously dumped into the mash of currents cruising through the famous Beagle Channel? No one seemed to know. Concerning the latter, which involved a much riskier expedition some four hundred years ago, I had no doubt.

Magellan, metaphorically speaking, missed the boat. Going through the Straits that bear his name in 1520, the fearless captain of the *Trinidad* saw a rocky, mist shrouded, cold land to his immediate south and decided it was of little interest. He took a pass on everything below 52 degrees south latitude. It would remain Terra Incognita (Nichols 2003: 5). Returning to Spain from their circumnavigation of the planet, eighteen survivors of the original 290 men explained to the Holy Roman Emperor that they saw many plumes of smoke to their south as they shot through the Straits. Charles V dubbed the land Tierra del Fuego, the Land of Fire (Hazlewood 2001, 5).

Some three hundred years later, the H.M.S. Beagle and Charles Darwin did not take a pass. He knew immediately that it was a very different sort of place on the planet and said so in a journal note on December 17th, 1832. “A single glance at the landscape was sufficient to show me how widely different it was from anything I had ever beheld.” (Darwin 1845, 83). But that was just his opening salvo and it leads us to what Magellan and company missed.

Standing at the mouth of the Robolo River, one hundred seventy years later, I plucked out a mammalian mandible from years of accumulating silt. It was from a guanaco, the more southern cousin of the llama, that still scurry below the glaciated slopes of Isla Navarino. These camel family members were abundant in the early 19th century. Native people made use of the skin and fur for make shift lean-tos. While two EarthWatch

expedition members contemplated the age of our find, albatross and other sea birds soared overhead.

But it wasn't just the topography and geology of the land, or fossils Darwin would find or birds observed, that made a seminal impact on the wealthy doctor's son. It was here, beyond and above "a tangled bank" in the archipelago of Tierra del Fuego, he saw the possibility for earlier forms of our own species (Darwin 1859, 504). He gave us a hint as to what held up his and the thinking of others on this topic deep in the conclusion of his 1859 *The Origin of Species by Natural Selection*. "But the chief cause of our natural unwillingness to admit that one species has given birth to other and more distinct species, is that we are always slow in admitting great changes of which we do not see the steps." (Darwin 1859: 497) It was here he saw the probabilities for "steps" that resulted in his and our species, the human animal. It was the native people themselves.

Darwin's fossil finds in Patagonia made a prodigious impact on the young naturalist who could now visualize change through time in the animal world (Quammen 2010, 150). But in his, at this point, young creationist mind, did it include human descent with modification?

Adrian Desmond's and James Moore's *Darwin's Sacred Cause* (2009) leads us in a healthy direction. Concerning what was roiling Darwin's mind and when, they stated, "The speed with which Darwin adopted evolution hints at a gestation on the voyage." (Desmond and Moore 2009, 114) Taking this one step further, I contend his theory of the oneness of the human races, gestated, or more correctly was confirmed, with his prodigious expedition to Tierra del Fuego.

It was mid-December 1832. The Beagle reached the eastern coast of Tierra del Fuego and the large island of the same name. Sightings of the Ona native people pepper Captain Robert FitzRoy's journal. The Beagle crew, in smaller boats and with their naturalist aboard, entered the Channel on January 19th, 1833. They explored the area until mid-February. They left for another visit to Patagonia and returned to Navarino Island after more than a year's absence in early March of 1834. Their final exit was on March 5th. (Darwin 1845, 92)

But now, reading Charles Lyell's geologic writings on board the *Beagle*, combined with his fossil finds in Patagonia, Darwin has the gift of time. It was a far deeper time than any biblical offering. It was in "savage land" that he poses a most pregnant question, "One's mind hurries back over past centuries [and] . . . asks could our progenitors be such as these?" (Desmond and Moore 2009, 97)

Thus, the Darwin brand was forged in the Land of Fire. After all, it was the Father of Modern Biology's theoretical implications for our species that set the world of science, and theology, ablaze. What was it that he saw?

The vicissitudes of climate isolated the native peoples of the Tierra del Fuego archipelago about 8,000 years ago. By the early nineteenth century, it is estimated there were 9,000 native peoples there (McEwan et al. 1997, 32). Besides this isolation, there were four tribes divided further by geography, life style and language. They were the Ona of the large island of Tierra del Fuego, the Alakaluf to the west, the Haush who toiled on the south-eastern tip, and finally the Yahgan¹ whose coastal, nomadic lives centered in and around Navarino Island. It was on this last-mentioned Island where the burgeoning naturalist spent most of his energy and time while in the Land of Fire. It was the Yahgan that dominate Darwin's observations and inferences.

OBSERVATIONS OF THE YAHGAN

The young naturalist's first encounters with Fuegians occurred during the Beagle's second voyage, his first and only to South America. Captain FitzRoy was returning natives he kidnapped during the first expedition sans Darwin. Fully clothed and having undergone an intense immersion in English culture of the times for three years, interactions with these natives on the voyage did not prepare Charles for what he would observe along the southern portion of the archipelago.

Darwin's first impressions upon seeing their brethren along the shores of Navarino Island in the Land of Fire made a lasting and most important impact as far as his developing ideas. While on the voyage, he wrote his former botany professor John Henslow,

The Fuegians are in a more miserable state of barbarism, than I had expected ever to have seen a human being . . . I shall never forget . . . the yell with which a party received us. They were seated on a rocky point, surrounded by the dark forest of beech; as they threw their arms wildly round their heads and their long hair streaming they seemed the troubled spirits of another world (Darwin 1845, 88).

Darwin would later characterize them as like “. . . the representations of Devils on the Stage, for instance, *Der Freischutz*.”(Darwin 1845, 83).²

¹ Although this article makes use of the popularly accepted 'Yahgan', these natives refer to themselves as Yamana.

² *Der Freischutz* is an opera based on an old German folk legend.

It is such characterizations that have brought the charges of racism against the father of modern biology. Are they justified? One must look beyond young Darwin's natural history background to gain insight here. We must grapple with 19th century mindsets. What was the zeitgeist at that time?

It was at Edinburgh University that young Charles rubbed shoulders with phrenologists.³ Developed by Franz Joseph Gall, phrenology held that the shape of the skull was predictive of mental prowess. This movement led to science's racist justification of slavery and held considerable sway by 1832 with its 29 phrenological societies. They also published a journal (Sagan 1979, 8). Indeed, the science of Anthropology owes its origins, in part, to phrenology.

Did all this influence young Charles? Of course. It would be easy in a short essay to airbrush Darwin of the crude racist wordage that find his letters of this period as well as permeate the summary of his around the world adventure in his 1839 *Voyage of the Beagle*. We need to have an all round view of the man, warts and all, in order to better appreciate the frontiers he opened in science and, very important here, the class boundaries he began to cross. The observations of the Yahgan helped him with both.

Class and racial boundaries were on my mind once again, as expedition members sat around a campfire one night. One participant used a crude term describing a black male with a white woman. An African American member took exception to this term and nostrils flared and chests expanded. While calmer heads prevailed, it was a reminder that these boundaries are still with us.

The use of the term barbarous to describe natives may seem incongruous from a 21st century perspective. One must keep in mind that England still supported slavery at this juncture; the term was typical usage in 19th century England. This verbiage can be found in the letters of gentile and military classes of the times.

³ Concerning phrenology, Darwin clearly benefitted by the movement's emphasis on anatomical detail, but the story doesn't end here. Even before his circumnavigation of the planet, he quickly grew skeptical of this so-called science. A friend helped him in this regard. In an 1830 letter to another friend, William Fox, Darwin wrote, "I forgot to mention, I dined with Sir J. Mac Kintosh & had some talk with him about Phrenology, & he has entirely battered down the very little belief of it. " While young Charles was in the process of sloughing off phrenology, it wasn't the case with his father. On October 5th, 1836, upon seeing his son for the first time after the voyage, Dr. Robert Darwin would famously exclaim, 'Why, the shape of his head is quite altered!' (Desmond and Moore 2009, 116)

In a December 1832 letter to his sister from Uruguay, Captain FitzRoy⁴ wrote, “I am again quitting the demi-civilized world and returning to the barbarous regions of the south . . .” (Hazlewood 2001, 117). The racism these classes used to justify slavery of Africans carried over to their characterizations of native peoples.

But 21st century readers, who stop here, are understandably repulsed by the racist descriptions by Darwin and others of this time period, miss the forest through the trees. Darwin also wrote to his sister in 1833, “. . . in the naked barbarian with his body coated with paint . . . with difficulty we see a fellow creature.” (Darwin 1845, 86) While it is with ‘difficulty’, he sees another human being. This is a crucial distinction as one of the main ideological weapons of slaveholders was the insistence that Africans were a separate species and not fully human. The young man draws a line in the sand here. Darwin sees a kinship, ‘a fellow creature.’ (Darwin 1845, 86)

Often missed in popular treatises is that Darwin and FitzRoy agreed on a very fundamental concept, albeit from very different starting points. They concurred that the races of man had a common origin. Of course the fundamentalist FitzRoy saw Adam and Eve as the origin of our species. Darwin was developing another, more materialist view. Nonetheless this agreement would prove important as the naturalist was visualizing common stock origins of all species. Given his daily contact with the Yahgan, questions about *Homo sapiens* and ancestors must have danced with his other revolutionary ideas.

Many of Darwin detractors point to his specific descriptions of the Fuegians as proof of his connoting racism. However, the classist baggage of his time seeped into his observations. He described York Minster, an Alakaluf Darwin met on the *Beagle*, as a “thick, powerful man and violently passionate.” (Darwin 1845, 84). This seems to conjure up the view of natives as hopelessly wild and on the same level as an animal predator. But if one reads this sentence again upon shedding our 21st century blinders, the then twenty three year old naturalist also said, “his intellect is good”, hardly a statement of a convinced racist (Darwin 1845, 84).

For a more rounded view of Darwin’s sentiments, one must consider his descriptions of Fuegia Basket, a native girl he encountered on the *Beagle* voyage. He noted her facility

⁴ 4 While Captain FitzRoy supported slaveholders, he was not the avid supporter of the system as some portray him. He projected sympathy for whites who inherited the system of slavery. He thought they treated the slaves well. While using racist terminology, he also showed sympathy for native peoples. When appointed governor of New Zealand years later, he ruled in favor of aborigines in a land issue over white landowners and he was quickly removed from his position! (Nichols 2003, 260).

with languages having learned English, Spanish and Portuguese. We have to keep in mind, as surely he did, that she was a preteen whose native tongue on the archipelago was Alakaluf, a language far removed from the European/Indo-European languages she learned. Differences were melting away and likenesses were emerging for young Charles.

In particular, Darwin's contact and comments about the Yahgan Jemmy Button showed the young naturalist's thinking in transition. While initially expressing the belief that the Yahgans were only capable of the most base of instincts, he begins to see they have a distinct culture. When Jemmy Button learned that his father died while the young Yahgan was in England, he rushed into the forest and burned some leaves. Contrary to Darwin's initial thought, this demonstrated some kind of religious ritual. Charles also learned that Jemmy's mother looked for him after he was stolen and mourned his absence for a long time. Family ties were important to the Yahgan as they were to the British (Hazlewood 2001, 126).

One measure of the religiosity of a people lies in the answer to a very basic question. Do they have a creation story? Enrique Campos Menendez lived with the last of the Ona people on Tierra del Fuego Island. He recounted the following story as told by Kupen in his moving 1999 tribute, *Soul of the wind*.

The earth and the water were created at the same time everywhere, but not all the shrubs budded on the same day, nor were the birds born in the same hour, nor did all the flowers open at once in some fields as in others. As for men, you must know that they appeared very far away from here, at the highest part of a mountain always dressed in green, where the sun lights and warms gently, where the rains fall torrentially." (Menendez 1999, 29)

I marveled at the sophistication of this origin story. Aside from the time scale, it recognizes that not everything happened at once or in the same place. It also demonstrates an awareness of the origin of our species in a warmer biome.

But what of the Yahgan, almost always described as the most primitive of all the Fuegians peoples? Was Jemmy's burning of the leaves just a spontaneous act of a mourning individual? The answer came to me in the living room of my home while watching a film in preparation for our expedition to Isla Navarino. Chilean biologists Drs. Ricardo Rozzi and Francisca Massardo, whose devoted work established the Omara Ethnobotanical Park, obtained rare archival film of the Yahgan. One of the two remaining native women did voice over and spoke in a flowing, melodic Yahgan prose. She explained, using some of the estimated 32,000 words in her native vocabulary, that the owl first brought water down from the mountains of Isla Navarino (Hazlewood 2011,

323). It was a no doubter. I was hearing a part of a creation story, a distinctly Yahgan one.

Pablo Neruda once remarked that the language of the Auracanian Native Peoples of Southern Chile was the most beautiful in the world. (Neruda 1978, 14) I heard such monikers for Latin Languages but never for a native peoples' language. Now, I understand it better. Yahgan flows like a mountain steam gently rippling over pebbles made smooth by the centuries. And the fact that it offers a window into the thinking and culture of these people at the uttermost end of the world is a clear bonus.

In a broader, new millennial way, I experienced my own encounter with Yahgan culture. While nestled in a small domicile in Puerto Williams, the most southerly town in the world, I heard a gentle tap on my door. In came a young man of about thirteen. He was rail thin with a dark complexion and wore a black headband. He timidly handed me a compact computer disk. He said in a whispered voice, half in Spanish and half in English, that it contained some of his writing. He looked away in a shy, almost embarrassed way, and left as quickly as he arrived. In this way, I was introduced to this young Yahgan's poetic prose, a written extension of their oral tradition. But what of Darwin whose interplay with the Yahgan was before their language was attempted in print?⁵

Did young Charles, who experienced Yahgan culture via a religious rite by Jemmy Button, shed all colonial views at that point? No. He stated clearly in *Voyage of the Beagle* (1845) that he hoped that FitzRoy's plan to have "civilized" natives' care for any marooned sailors in the future was successful (Darwin 1845, 40).⁶ But to stop here with this is to miss the transition in the mind of this young British man of means.

Most telling is the fluidity of Darwin's thinking when seeing Jemmy for the last time along the shores of Isla Navarino. During the initial part of the voyage and after first contact with Jemmy's Yahgan family, the naturalist only saw Jemmy happy in his British clothes and in a 'civilized' setting. But upon the *Beagle's* return to Tierra del Fuego a year later, Darwin's thinking had significantly changed. "I hope and have little doubt he will be happy as if he had never left his country; which is more than I formerly thought." (Darwin 1845, 92). The young naturalist was sloughing off concepts of his Victorian background.

⁵ It was Lucas Bridges who lived among Fuegian Indians and documented their languages (Mernendez 1999, 12).

⁶ Hopes of this outcome were dashed with a number of Yahgan revolts against colonial intrusion. Jemmy Button appeared to have led an anti-colonial revolt years later (Hazlewood 2011, 253).

The Tierra del Fuego sojourn may not all have been an evidentiary one for Master Darwin. Did the year away from Tierra del Fuego and before his return visit give him a chance to wax theoretical about his observations? We get a hint of this in a December 25th, 1832 journal entry. "Nature by making habit omnipotent and its effects hereditary, has fitted the Fuegian to climate and the productions of his miserable country." (Darwin 1845, 88) While bent toward a Lamarckian framework, a young Charles contemplated how these native peoples were 'fitted' to their environment, clearly displaying some theoretical musings.

Did Darwin have inklings that early members of our species underwent a diaspora from an initial hotbed of human evolution? At this juncture in his development, it is hard to discern. What we can be sure of is that some thirty-seven years after the above statement, he said it quite clearly. And when he did, he showed no compunction to point to Africa. In his 1871 *Descent of Man*, he pointed to the gorilla and chimpanzee as ". . . man's closest allies, it is somewhat more probable that our early progenitors lived on the African continent than elsewhere."⁷ (Darwin 1871, 336).

THE FORCE OF IMPRESSION AND PRECONCEIVED IDEAS

Charles Darwin famously wrote in his 1845 *Voyage of the Beagle*, "The force of impression generally depends upon preconceived ideas . . ." (Darwin 1845, 503) From whence came those preconceived ideas?

An early influence on young Charles was explorer Baron Alexander von Humboldt. As Aaron Sachs' wrote in *The Humboldt Current* (2006), von Humboldt became very wary of colonial efforts to 'civilize' native peoples and equally wary of the racist concepts to justify colonization (Sachs 2006, 58). Darwin took few books with him on board the *Beagle*, but of those few were the Baron's *Personal Narrative*. Darwin was unequivocal and once stated, "(Humboldt) illumines everything I behold." (Desmond and Moore 2009, 78).

Some thirty-five years after his experiences in Tierra del Fuego, Darwin rekindled contact with a former lieutenant of the *H.M.S. Beagle*, Bartholomew Sullivan. The navy man remained connected to the experiences with the Yahgan through working with the missions in Isla Navarino. As an old comrade, he wrote to Darwin and convinced him to contribute to the effort. It wasn't long before the naturalist had his doubts about these "civilizing" efforts (Hazlewood 2001, 342).

⁷ Darwin doesn't say we descended from present day apes but that they are "allies". In common parlance, they are cousins.

It was another wayfarer of the *Beagle*, Arthur Mellersh, a mate on the famous second voyage, who raised further concerns. He wrote Darwin, "Sullivan tells me there is a mission established in Tierra del Fuego, I hope it will succeed in preventing the poor people from being "improved" off the face of the earth." (Hazlewood 2001, 342) By 1873, Darwin had written another friend who was knowledgeable about the condition of the Fuegians and asked if the process of "civilizing" the natives harmed their health (Hazlewood 2001, 342). This latter questioning was very much in an antiracist Humboldtian mold (Yannielli 2011, 30).

Does the younger Darwin more than hint at something resembling this future sequence of events? In January of 1834 and while rounding the northern most aspect of the archipelago, he saw the natives along the Patagonian side of the Straits of Magellan. He observed them with his usual British scientific eye. He described them as "thoroughly good-humored and unsuspecting" and noted their facility for languages, especially Spanish and English (Darwin 1845, 84). But Darwin didn't leave it there. In a pure Humboldtian⁸ inference, the future Father of Modern Biology contemplated whether these language skills would lead to their civilization or demoralization.

More than anything else, family context well prepared the young naturalist to absorb the fervor of the times with a radical twist. From his maternal side, his grandfather Josiah Wedgwood, an industrial potter of considerable wealth, and from his paternal side, Grandfather Dr. Erasmus Darwin, were both members of the Lunar Society. These "lunatics" actively proselytized abolitionism, going beyond antislavery to the more radical position of equality for all. Shrewsbury, where Young Charles was born and Chapham village⁹, where he quite often visited, were hotbeds of abolitionist activity. The long reach of the family didn't escape him literally even in distant Tierra del Fuego. On March 7th, 1833 Sister Caroline would write him, "All parties seem to agree that some strong measure in favor of emancipation of the slaves will be carried out this session . . ." ¹⁰ (Desmond and Moore 2009, 87).

So family, movements and ideas impacted Darwin in his important developing years. At twenty-two years of age, as he embarked on his circumnavigation of the planet, all of these came to bear on his world outlook. Ultimately, he would shed creationism. But

⁸ Humboldt held "the very idea of a colony is immoral" because of the exploitation that accompanied it (Sachs 2006, 58).

⁹ The atmosphere in these English locales may be likened to the abolitionist fervor in Henry David Thoreau's Concord, Massachusetts, in the 1850s.

¹⁰ While England abolished the slave trade in 1814, it didn't abolish slavery until August 28, 1833.

what stuck to his ribs as they say? Abolitionism. It came at him from every direction. His second stab at academia was at Cambridge University. The atmosphere was filled with the anti-slavery fervor of the evangelicals; moreover it was abolitionist Thomas Clarkson's home turf.

It was an inchoate desire to show the unity of the rainbow of forms and the colors of our species that helped the naturalist see further. Observing men and women in a "primitive state", in particular the Yahgan of Isla Navarino, crystallized the concept of earlier morphologies for our species (Darwin 1845, 93). Any lingering creationist ideas were swept away by the winds of the Beagle Channel. His periscope into the past, as it envisioned our own species, was now inhabited by the possibility of other transitional forms.

CONCLUSION

For Darwin there was no agave realization that our species was a product of wilderness and wildness. However that framework began early with family influence. Abolitionism addressed not only freedom for the slaves but also equality. His rereading of Alexander von Humboldt during the voyage, including such statements as ". . . the ties of consanguinity, by which [each man] is linked to beings to whose language and manners he is a stranger.", further added to that framework (Sachs 2006, 67).

Tierra del Fuego provided the observations and experiences that helped Darwin put this all together. It helped him realize we were a product of the same natural forces that generated the cycad and the albatross or extinctions. He later wrote in his evolution notebook, ". . . species . . . may pass into each other. . ." "There is no more wonder in extinction of species than of individual." (Herbert 1980, 67) "Man . . . wonderful man . . . his end under present form will come . . . he is no exception." (Desmond and Moore 2009, 120).

One afternoon on Isla Navarino, I meandered out of our base camp, which was about a mile into the old growth beech forest. By scurrying across some dead trees, I was able to traverse the Robalo River and up the slope overlooking our base camp and the river. Looking eastward, I saw a Yahgan boy fishing from the river's bank. With just a string and patience, he stood still as if part of the landscape. Were his thoughts of an immediate nature, perhaps the sweet taste of fish or were they more contemplative of his and his peoples' roots? Did he grasp the lessons his people taught the developing naturalist two centuries earlier?

The one local school worked toward instilling pride of people and place. A large mural depicted naked Yahgan women diving for bivalves.¹¹ We saw hard evidence of this past practice. While strolling the shore of the Beagle Channel, our Chilean hosts showed us a huge mitten pile representing decades of many successful dives into the fringed waters. Later, led by grade school children in a typical Earth Day activity, we picked up debris along the shore of the Channel.

What of these native people who, through their very existence and interaction with others, helped the world understand our place in the natural order of life's tapestry? Darwin estimated there were about 3,000 Yahgans in the 1830s. Unfortunately, the strife that followed more intense colonial contact and the force of disease, especially small pox, halved the population around the time of Jemmy Button's death in 1864 (Hazlewood 2001, 354).¹² During my visits to Navarino in the new millennium, I observed two full-blooded Yahgans, both women. Cristina and Ursula Calderon have died since.

There are new challenges on the horizon for the descendents of the Yahgan. One evening I was benighted while emerging from the forest. Fortunately, this was not a dangerous situation for me. There are no large carnivorous mammals on Isla Navarino. Nor are there any reptiles or amphibians. They just never made it to this remote island. But what I saw had the potential to be a grave threat to the ecology of the Island and the people there.

In the distant harbor of Puerto Williams, I could see the gleaming lights of what looked like a merry-go-round in an amusement park. It looked incongruous in the jet-black subantarctic night. It was a yacht. What it would portend was neither merry nor amusing.

The next day I was told that this vessel brought a very wealthy Chilean to the island who was interested in starting a salmon farm there. The dangers of these nonnative fish to the sensitive subantarctic ecology and economy of the area are many. The fisher people and the Chilean biologists perceived antibiotics, artificial coloration and most

¹¹ It was mostly women who dived into the cold waters of the Beagle Channel. They collected clams and other hard-shelled organisms.

¹² Hazlewood continues to explain that by 1908 there were 170 Yahgans alive and by 1947 there were only 43 Yahgans alive. He then states more broadly that it is doubtful that there are any pure Fuegian Indians today. As our experience attests with Cristina and Ursula Calderon, this last statement is in error as of 2001. (Hazlewood 2001, 354)

importantly, these large predacious fish themselves as threats to the natural environment.

Adept organizing by our Chilean partners thwarted this effort. In 2005, some three years later, UNESCO declared this area the Cape Horn Biosphere Reserve. Given the remoteness of Isla Navarino, challenges to the sustainability of the environment and the local economy will continue. Dr. Ricardo Rozzi, who helped orchestrate the UNESCO designation, said it best. "In current times, human-driven global change demands not only more scientific knowledge but also a sense of environmental ethics." (Rozzi 2011, 247).

Charles Darwin, one hundred fifty years earlier, also faced a challenge, albeit of a different nature. It required an answer to one of the most daunting questions facing humankind. The Darwin finches of the Galapagos Islands took 400 pages to appear in *Origins*. The significance of Darwin's theory concerning humans didn't make it until the very last page with this tease – "Much light will be thrown on the origin of man and his history." (Darwin 1859, 504).

But often missed is the significance of the opening sentence of the book that shook the world and still roils it. Darwin immediately referred to the significance of his time in South America. Was it the experiences on the Galapagos Islands off Ecuador or the plains and mountains of Patagonia he refers to? The answer is neither. It's in a "savage land" where he posed a most pregnant question, "One's mind hurries back over past centuries [and] . . . asks could our progenitors be such as these?" (Desmond and Moore 2009, 97) It was while contemplating the deep roots of our species in Tierra del Fuego that the young Darwin decided to study natural history for the rest of his life.

Darwin changed the way we see ourselves. But first the naturalist had to change. The most important part of that transformation occurred in Tierra del Fuego. It was there he envisioned our animal past. He saw the "steps" only hinted at by his abolitionist background (Darwin 1859, 497).

Any idea that he harbored of a special creation of our species died in Tierra del Fuego. The sloughing off of creationism happened neither in the Galapagos Islands nor in Patagonia. It occurred when he saw Yahgans naked and perched on a beach tree hanging precariously over the Beagle Channel. Here he envisioned, as if on a time machine hurling back hundreds of thousands of years, our primitive past.

This wasn't yet his "dangerous" idea of natural selection (Dennett 1996, 18). That was still percolating in his mind, ready to break the Victorian template. However, what made his theoretical musing during the voyage so dangerous was just the implication of other

animal morphologies in a unified human family tree. And that thought crystalized in what appeared to him as, “. . . beyond the confines of this world.” (Darwin 1845, 86) It happened in the *Land of Fire*.

BIOGRAPHICAL NOTE

Len Yannielli is the 2009 Evolution Educator of the Year, awarded by the National Association of Biology Teachers, The American Institute of Biological Sciences and the Biological Sciences Curriculum Studies. His latest book is his memoir *Moon Shadow of War* (2014), a summary of which can be found on the following website: <https://wwwcreatespace.com/4330714>.

REFERENCES

- Darwin, Charles. *The voyage of the Beagle: journal of researches into the natural history and geology of the countries visited during the voyage of H.M.S. Beagle round the world*. R.N. 2nd edition. London: John Murray, 1845.
- Darwin, Charles. 1991. *The Voyage of the H.M.S. Beagle*. Second Edition, Madison Park: Seattle. Originally published by Murray, *The voyage of the Beagle: journal of researches into the natural history and geology of the countries visited during the voyage of H.M.S. Beagle round the world*. 2nd edition (London,1845).
- Darwin, Charles. Vol. 49 “Great Books of the Western World.” edited by Mortimer J. Adler et al. Chicago: The University of Chicago Press, 1991. Originally published by Murray, *The Descent of Man, and Selection in Relationship to Sex Selection*, Vol. 1 (London, 1871).
- Darwin, Charles. *The Origin of Species by Means of Natural Selection*. New York: A.L. Burt Pub, 1901.
- Dennett, D. *Darwin’s Dangerous Idea – Evolution And The Meaning Of Life*. New York: Touchstone, 1996.
- Desmond, A., Moore J. *Darwin’s Sacred Cause—How a Hatred of Slavery Shaped Darwin’s View on Human Evolution*. New York: Houghton Mifflin Harcourt, 2009.
- Hazlewood, N. *Savage – The Life and Times of Jemmy Button*. New York: St. Martin’s Press, 2001.
- Herbert, Sandra. Ed. *The Red Notebook of Charles Darwin*. Cornell University Press, 1980.
- McEwan, Colin, L. Borrero, A. Prieto. Eds. *Patagonia – Natural History, Prehistory And Ethnography At The Uttermost End Of The World*. British Museum Press, 1997.

- Menendez, Enrique C. *Soul Of The Wind: Magic – Love – Agony – Stories and legends of the Ona Indians of Tierra del Fuego*. Editorial Southern Patagonia: Punta Arenas, 1999.
- Neruda, Pablo. *Memoirs*. New York: Penguin, 1978.
- Nichols, Peter. *Evolutions Captain: The Story of the Kidnapping That Led to Charles Darwin's Voyage Aboard the Beagle*. New York: Harper Collins, 2003.
- Quammen, David. 2010. Darwin's First Clues. National Geographic. Found in Best American Science and Nature Writing. Ed. Freeman Dyson.
- Rozzi, R., Massardo, F. 2011. The Road to Biocultural Ethics. *Frontiers in Ecology* 16:247. www.frontiersinecology.org
- Sachs, A. *The Humboldt Current – Nineteenth-Century Exploration and the Roots of American Environmentalism*. New York: Viking, 2006.
- Sagan, C. *Broca's Brain*. New York: Random House, 1979.
- Yannielli, L. 2011. "The Charles Darwin You Didn't Know." *The Connecticut Journal of Science Education*. Southern Connecticut State University. Fall-Winter 48:1:29-31.