

REvolutionary

Voyage of  
Discovery

“You care for nothing but shooting, dogs, and rat-catching, and you will be a disgrace to yourself and all your family.” These were the words of my father demonstrating that, as a young man, I was not impressing him. But my father, who was the kindest man I ever knew, and whose memory I love with all my heart, must have been angry and somewhat unjust when he used such words.



Charles Darwin, 31 yrs old, 1840

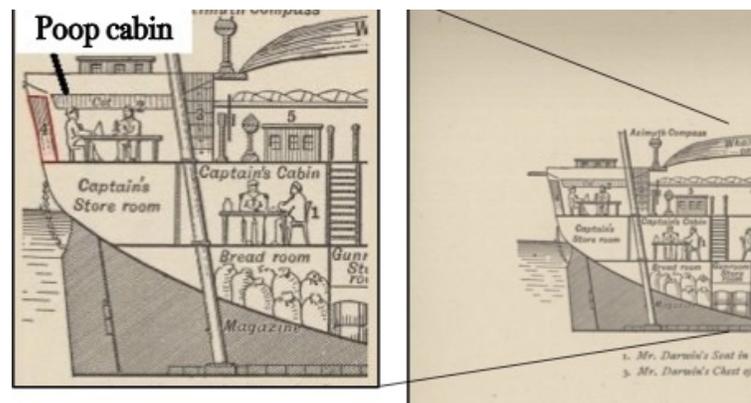
On returning home from a short geological tour with Professor Adam Sedgwick, I found a letter from Henslow, informing me that Captain Robert FitzRoy had invited me to join him as his companion on the voyage of the HMS Beagle.

Unbeknownst to me, FitzRoy had proposed to the Hydrographer, Captain Beaufort, that a young man of suitable social disposition with an interest in Natural History be allowed to accompany him on his voyage. After approval of the suggestion, he wrote to Professor Peacock, of Cambridge, who consulted with his friend,

Professor Henslow, and he named me, as “a young man of promising ability, extremely fond of geology, and indeed all branches of natural history.” I learned much later that Henslow had briefly considered going himself and he also first offered the position to another former student who also declined the offer.

This voyage set out to complete a geographical and hydrographical survey of South America that an earlier Beagle voyage had left incomplete. It was the also the first attempt to take accurate time measurements around the world to get better measurements for longitude determination.

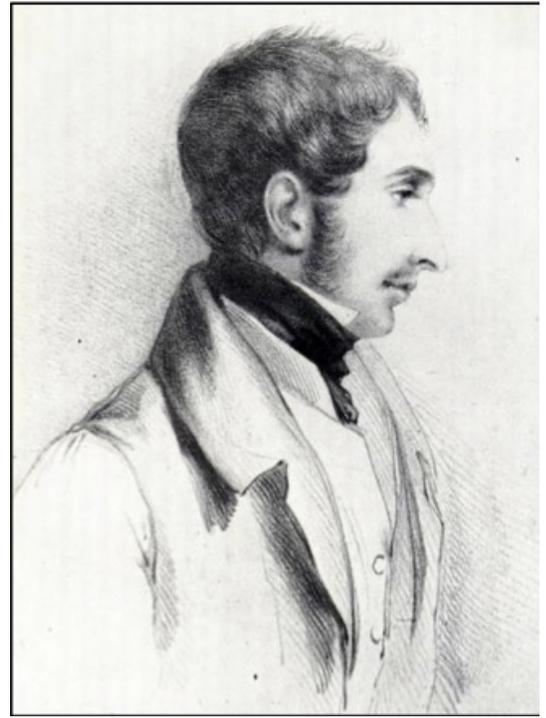
I was instantly eager to accept the offer, but my father strongly objected. However, he said, “If you can find any man of common sense, who advises you to go, I will give my consent.” So, I wrote to Henslow that evening and refused the offer and left the next



Cross section of the *HMS Beagle* showing Darwin's seat in the poop cabin.

morning to my uncle's home for hunting. My uncle offered to drive me home to talk with my father. My uncle thought it would be wise in me to accept the offer and my father at once consented in the kindest manner.

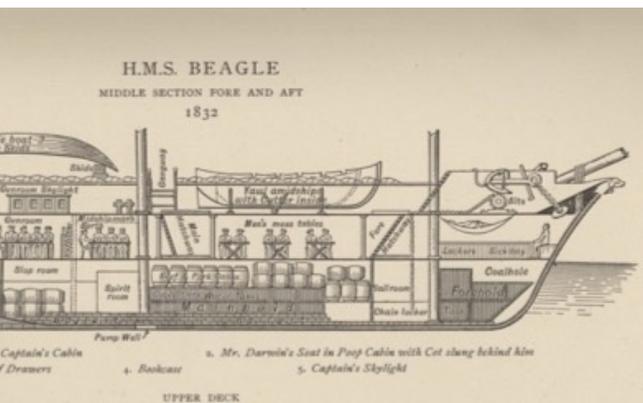
When I went to London to see FitzRoy, he told me that within the hour a friend of his, a Mr. Chester, had turned down his offer to accompany him. We spoke for some time and he then agreed to take me on and we made the necessary arrangements. I learned later that I had run a very narrow risk of being rejected, on account of the shape of my nose! FitzRoy was convinced that he could judge a man's character by the outline of his features and he doubted whether anyone with my nose could possess sufficient energy and determination for the voyage. But I think he was afterwards well-satisfied that my nose had spoken falsely.



Robert FitzRoy, RN, 30 yrs old, 1835

For almost four months our departure was delayed. Final fitting of the ship and poor

weather prevented our sailing until December 27. Our first stop was to be Ascension Island, the destination of my dreams. However, we could not land there because a cholera outbreak in England at that time required us to quarantine off-shore for two weeks. The captain said that was too long a delay, so we left, meaning I would never see the marvels Herschel described there.



in's sleeping quarters and work space in

In my first visit to a foreign shore I learned the excitement of discovery as well as the disappointment of loss of novelty. Our first stop on our voyage was at St. Jago in the Cape de Verd islands off the African coast. The neighborhood of Porto Praya at first appeared desolate. However, when I made excursions into the surrounding area and on Quail Island in the harbor, I discovered some marvelous creatures and stunning geology. My first foray onto the island while treading on volcanic rocks, hearing the notes of unknown birds and seeing new insects



fluttering about under still newer flowers, I thought, “It has been for me a glorious day, like giving to a blind man eyes.”

My geological observations of the islands were as exciting as those of the animals in the tidal pools, and subsequently more rewarding. I observed around one island a perfectly horizontal layer of white rock running for miles 45 feet above sea level. Upon closer inspection I found it composed of calcified material with embedded white shells. These were shells of molluscs like those still present in the surrounding seashore. Over the top of this layer was a layer of solidified lava, that must have entered the sea and then covered the sea

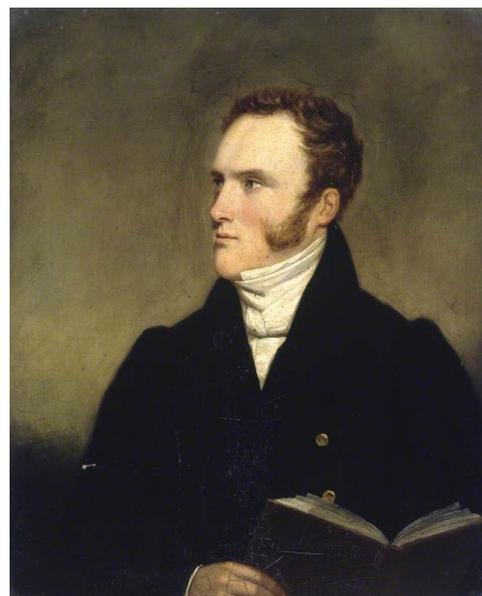
Porto Praya, island of St. Jago, Cape de Verde island





floor.

The accepted theory of the formation of such strata would say that this white layer appeared on land by the subsidence of the sea and that these changes happened very long ago. But being a new, young geologist with a mind swimming with new ideas that found in my reading of Charles Lyell's new *Principles of Geology*, I was want to speculate wildly about my observations. The similarity of the shells in the limestone layer with those now in the sea lead me to believe that this formation appeared rather recently. I also thought it more likely that this seafloor subsequently rose above the water



Charles Lyell,

I remember thinking about my new theory while sitting on a beach on Quail Island, filled with the enthusiasm and bravado of a young investigator. I was eating a lunch of ripe tamarinds and biscuit when it first dawned on me that I might write a book on the

geology of the various countries I would visit. I was thrilled with delight at the prospect of taking my first steps into the world of science.

We sailed on to Brazil and I explored the forests near the city of Bahia. I remember one day wandering by myself in the Brazilian forest. It was hard to say what set of objects there was most striking. Ultimately, I thought that the general luxuriance of the vegetation bore the victory. The elegance of the grasses, the novelty of the parasitical plants, the beauty of the flowers, the glossy green of the foliage, all tended to this end. The noise from the insects was so loud that in the evening it could even be heard in a vessel anchored several hundred yards



Bahia, Brazil vegetation

from the shore. Yet within the recesses of the forest a universal stillness appeared to reign. To a person fond of Natural history such a day as that brought with it pleasure more acute than he ever may again experience.

It was in Bahia that I first encountered slavery. In the city of Salvador all the labor is done by the black men, who stand collected in great numbers round the merchants' warehouses. While in port, we dined one evening on the quarter deck of the Beagle with the captain of another vessel. He told us revolting facts about slavery: the extent to which the trade is carried on, the ferocity with which it is defended, and the supposedly respectable people



Slave market at Rio de Janeiro who are concerned in it.

I encountered one such person on one of several excursions I took on land near Rio de Janeiro. I visited an estate where there was a most violent and disagreeable quarrel between the owner and his agent, a slave of his. During the quarrel, the owner threatened



Megatherium, giant ground sloth, at the Natural History Museum, London. darwin found fossil skull and teeth of various ground sloth species.

to sell at the public auction an illegitimate mulatto child to whom agent was much attached. He also nearly put into execution taking all the women and children from their husbands and selling them separately at the market at Rio. Can two more horrible and flagrant instances be imagined? How weak are the arguments of those who maintain that slavery is a tolerable evil!

I may mention another very trifling anecdote, which at the time struck me more forcibly than any story of cruelty. I was crossing a ferry with a negro. In



endeavouring to make him understand, I talked loud and made signs, in doing which I passed my hand near his face. He, I suppose, thought I was in a passion, and was going to strike him, for instantly, with a frightened look and half-shut eyes, he dropped his hands. I shall never forget my feelings of surprise, disgust, and shame, at seeing a great powerful man afraid even to ward off a blow, directed, as he thought, at his face. This man had been trained to a degradation lower than the slavery of the most helpless animal.

At that time there was a rising feeling in England against slavery in the colonies. I thought what a proud thing for England it would be if she were the first European nation which utterly abolished it.

In Argentina I made many discoveries of fossils, some new to science. These were important in developing my ideas of how animals change through time and how some forms of creatures present today could also be found as fossils. I also found how some animals on the Pampas to the north were like those in Patagonia in Argentina. I realized they were related and came from a common ancestor.

One such animal was the flightless bird the rhea. In north, the larger form was known, but no specimen of the smaller version had been collected. When I was camping ashore at Port Desire, the Beagle artist, Mr. Martens shot what I thought was an ostrich. The bird was skinned and cooked before my memory of the small rhea returned. I immediately gathered up the bones left by those who had eaten their share and collected the head, neck, legs, wings, many of the larger feathers, and a large part of the skin from the refuse pile. I took them back to the ship and sent them to an ornithologist in London. From these, a very nearly perfect specimen was put together that was exhibited in the museum of the Zoological Society in London.



Greater rhea

While in Argentina, I frequently made excursions on shore, often meeting and sometimes traveling with the horsemen of the region, the Gauchos. I was a good horseman and nimble with a gun and I was fit and able to live outdoors so I sometimes traveled with the Gauchos. I was impressed with their hunting skills using a lazo or bolas.



Gaucha hunting rhea with a bola.

The bolas were used to catch game like deer or rhea from horseback. They are made of two or three round stones, covered in leather, united by a thin plaited thong, about 8 feet long. To throw them, the Gaucho holds the smallest of the three in his hand, and whirls the other two round and round his head. Then,

taking aim, he sends them like chain shot revolving through the air. The balls strike an object, wind round it, and become firmly hitched. The main difficulty in using either the lazo or bolas is to ride so well as to be able, at full speed and while suddenly turning about, to whirl them so steadily round the head and to take aim. On foot, any person would soon learn the art. One day, as I was amusing myself by galloping and whirling a two-ball bola round my head, holding one of the balls. By accident the free one struck a bush. It immediately fell to the ground, and, like magic, caught one hind leg of my horse. The other ball was then jerked out of my hand, and secured my horse. Luckily my horse was an old practiced animal and knew what it meant. Otherwise, he would probably have kicked till he had thrown himself, and me, down. The Gauchos roared with laughter. They cried and said that they had seen every sort of animal caught, but had never before seen a man caught by himself.

We sailed on, mapping the coasts down the Argentinian coast to the tip of South America, Tierra del Fuego. Then we continued up the





Galapagos tortoise

archipelago.

While there I collected plants, birds, and reptiles. There were no mammals there. I hoped to view an active volcano up close, but I was disappointed to find that none of the volcanoes there were active at that time.

Most notable among the reptiles were that large tortoises and the 2 to 3 foot clumsy lizards, most living at the shores. The birds were very tame as they were largely strangers



(L) Galapagos land iguana,  
(above) marine iguana

anxious for a new  
miles off the coast,  
across the Pacific  
things I looked  
I thought that both  
looked forward to

completely by small,  
seemed that this  
visited 4 of the  
islands in our 35  
days on the

to men. I was intrigued by the mockingbirds as I found them to be different on each island. Another kind of bird was also quite abundant, though I thought them to belong to several different kinds. Though I collected those, too, I neglected to note from which island I collected each specimen. I was a novice naturalist and this grave error came to haunt me since, when I returned to England and had an ornithologist examine these, he found them all



## Credits

### **Cover: HMS Beagle at Tierra del Fuego, painted by Conrad Martens**

<https://www.nationalgeographic.com/history/history-magazine/article/darwin-voyage-beagle-first-only-trip-around-world-scientific-revolution>

### **Charles Darwin, 1840, 4 years after the voyage, painted by George Richmond**

<https://www.neh.gov/humanities/2009/mayjune/feature/darwin-the-young-adventurer>

### **Beagle diagram**

[https://commons.wikimedia.org/wiki/File:Beagle\\_-\\_plan\\_1832.jpg](https://commons.wikimedia.org/wiki/File:Beagle_-_plan_1832.jpg)

### **Robert FitzRoy, RN, captain of HMS Beagle, 1835**

[https://www.mun.ca/biology/scarr/Robert\\_FitzRoy\\_RN.html](https://www.mun.ca/biology/scarr/Robert_FitzRoy_RN.html)

### **Map of Beagle voyage**

[https://www.modelshipmaster.com/products/tall\\_ships/HMS\\_BEAGLE\\_model.htm](https://www.modelshipmaster.com/products/tall_ships/HMS_BEAGLE_model.htm)

### **"Sunday Service at Sea," painted by Augustus Earle; Darwin is reading at left**

[https://www.mun.ca/biology/scarr/Voyage\\_of\\_the\\_Beagle.html](https://www.mun.ca/biology/scarr/Voyage_of_the_Beagle.html)

### **Porto Praya, island of St. Jago, Cape de Verde islands, 1806**

[https://en.wikipedia.org/wiki/History\\_of\\_Cape\\_Verde#/media/File:BARROW\(1806\)\\_p098\\_PORTO\\_PRAYA,\\_ISLAND\\_OF\\_ST.JAGO.jpg](https://en.wikipedia.org/wiki/History_of_Cape_Verde#/media/File:BARROW(1806)_p098_PORTO_PRAYA,_ISLAND_OF_ST.JAGO.jpg)

### **Charles Lyell, 1835**

<https://artuk.org/discover/artworks/sir-charles-lyell-17971875-179438>

### **Bahia, Brazil vegetation**

<https://www.travel-brazil-selection.com/my-trip-to-brazil/by-destinations/bahia/>

### **Slave market at Rio de Janeiro, from Brazil by Errol Lincoln Uys**

<https://erroluys.com/Kindle/KindleIllustratedGuide2.htm>

### **Gaicho hunting rhea**

<https://patlibros.org/rhea/?lan=eng>

### **Megatherium, giant ground sloth, at the Natural History Museum, London**

<https://www.nhm.ac.uk/discover/what-was-megatherium.html>

### **Greater rhea**

<https://alchetron.com/Greater-rhea>

### **Gaicho hunting a rhea**

<https://patlibros.org/rhea/?lan=eng>

### **Galapagos tortoise**

[https://rangerrick.org/ranger\\_rick/galapagos-tortoises/](https://rangerrick.org/ranger_rick/galapagos-tortoises/)

### **Galapagos marine iguana**

<https://www.worldwildlife.org/species/marine-iguana>

### **Galapagos land iguana**

<https://www.theguardian.com/world/2019/jan/08/galapagos-island-gets-its-first-iguanas-since-darwin-after-mass-release>

### **Species of finches that Darwin observed on the Galapagos and Map of Galapagos Islands, from Darwin, C. R. 1845. Journal of researches**

<http://darwin-online.org.uk/content/frameset?itemID=F14&viewtype=text&pageseq=1>