

CELEBRATING SCIENCE AND RELIGION SUNDAY, FORMERLY EVOLUTION SUNDAY:

“If I Could Have Dinner with Charles Darwin”

Feb. 12, 2023 By Cynthia Powers

On February 12, 1809, two baby boys were born on opposite sides of the Atlantic. One, of course, was Abraham Lincoln. The other was Charles Darwin.

For a few years now, various congregations have celebrated “Evolution Sunday” on or near Darwin’s birthday. Recently they decided to call it “Religion and Science” Sunday. The idea is that religion and science don’t need to be enemies. Galileo, quoting a church official, said it well: “Scripture tells you how to go to heaven, but not how the heavens go.”

I wanted to tell you a little about why I admire Charles Darwin, and then let you in on my fantasy about what I’d tell him, if I could have dinner with him.

First of all, was Darwin really a Unitarian? His name is on my “Famous UU’s” sweatshirt, but I’m not sure. His famous grandfathers were both Unitarians, and right after his mother died, when Charles was only 8, he was sent to a day school run by a Unitarian minister at Shrewsbury. Laurie Proctor has seen the plaque at the Unitarian church there that says he worshipped there as a child. When he and his wife Emma lived at Down House, near London, they were members of the village Church of England. Charles didn’t go to services but enjoyed talking with the pastor, Brodie Innes. They disagreed about

most things: Darwin said, “We have been fast friends for 30 years. We never thoroughly agreed on any subject but one, and then we looked at each other and thought one of us must be very ill!” Charles and Emma faithfully supported what we would call the social action functions of the church, teaching the working-class children, taking food to shut-ins and so on.

Charles was lucky to have been born into a wealthy family, so he had the advantage of a good education. His two grandfathers were scientists, Josiah Wedgwood of the Wedgwood pottery company, and Erasmus Darwin, a noted horticulturalist who had espoused an early version of evolution. Charles was sent off at age 16 to Edinburgh University to become a physician like his father. But there was one big problem: he couldn’t stand the sight of blood, or of surgery in those days before anaesthesia. So he only lasted two years as a medical student, but all was not wasted. He had learned the basics of anatomy, physiology, and field biology. On the bad side, he’d taken to using snuff, which became a near addiction. Somewhere in his school career his exasperated father had said: “You care for nothing but shooting, dogs, and rat-catching, and you will be a disgrace to yourself and all your family!” When telling this story, Charles went on to say that his father was the kindest man he ever knew, and that “he must have been angry and somewhat unjust when he used such words.” Every parent has had that experience!

Next it was decided that Charles should become a clergyman, so he was sent off to Cambridge. But his real interests in college, next to partying, included attending botany lectures given by Dr. John Henslow, hiking with the geologist Sedgwick, and collecting beetles. At that time, he writes in his Autobiography, he did not doubt the truth of every word in the Bible. But, he says, his intention of being a clergyman died a natural death after leaving Cambridge, when he joined the round-the-world voyage of the sailing ship named the Beagle, as its naturalist.

The Beagle was a 90 foot sailing ship which was being sent to make maps of South America. It traveled to Argentina, around Cape Horn, to the Galapagos Islands, Tahiti, New Zealand and Australia, then around southern Africa and the Azores. The voyage was supposed to take two years, but ended up taking almost 5. The captain, Robert FitzRoy, wanted a “gentleman” to share his cabin, as a companion and probably as an antidote to strict military discipline. He warned Darwin that he “must live poorly, without wine, and only the plainest of dinners.” They slept in hammocks suspended over the large table where the maps were spread out. FitzRoy had a reputation as a competent and humane officer. He was also a fundamentalist, and had periods of depression, probably bipolar disorder. (Many years later he died by suicide.) At the time of the voyage, FitzRoy was 26 and Darwin was 23.

Darwin was miserably seasick most of the time when the ship was under way, but once he got on shore, he had adventures one after another. In Patagonia, he found fossil bones of an extinct camel, which he realized was related to the living llamas and guanacos he saw there. In Chile, he experienced an earthquake, saw petrified trees in the Andes, and noticed a huge fossil armadillo that made him wonder if it was the ancestor of living armadillos. And he was outraged at the cruelty of slavery he observed in Argentina. In fact, he had a big argument with FitzRoy on the subject of slavery, and moved out of FitzRoy's cabin for a short time until FitzRoy invited him back.

Everywhere Charles went, he collected specimens and shipped them back to England every chance he got. In the Galapagos Islands, he noticed how each island had its own kind of tortoise. And that's where he made a bad mistake: he collected several of the little birds now referred to as "Darwin's Finches"—but he thought they were entirely different species, and didn't label them as to which island they came from. When they were studied later that information would have been very helpful. It turned out that they were the textbook example of what's now called "adaptive radiation"----from a common ancestor, the birds had changed over time to fill many different ecological niches. ("Ecological Niche" means the "job" the species does.)

After the Beagle voyage, life settled into an upperclass Victorian routine. Charles married Emma Wedgwood, his first cousin. They eventually settled at Down House, south of London, and had 10 children. Three of the children died young; some were afflicted with strange tics or convulsions, or irregular heartbeats. The tenth never began to talk and died within two years. Darwin worried that the long history of intermarriages between the Darwin and Wedgwood families had contributed to his family's poor health.

Darwin himself was often ill with vague symptoms : weakness, nausea, and abdominal distress. In his letters, Darwin gives way too much detail about all these! He took many cold water cures, enemas, and so on that probably didn't help. Some have theorized that he had anxiety attacks leading to hyperventilation, or psychological ailments related to his mother's death or to his worry about his controversial theory. At any rate, someone commented that Emma was the perfect nurse, who had found the perfect patient! Of course, by being sick he could avoid visitors and dinner parties that he didn't really enjoy anyway.

How else did Darwin spend the 20 years or so between the Beagle's return and his 1859 publication of *The Origin of*

Species? Here's where I said he did his homework. He studied exhaustively beetles, barnacles, and orchids, and bred pigeons. One story I found endearing was when his children were invited to play at a neighbor's house. On looking into a room there, they asked: "Is that where your father does his barnacles?"

As for orchids, he was fascinated with their complex structures and that of the insects that pollinated each one. Today we call it co-evolution: both the flower structure and the insect's mouthparts change in exquisite detail, to prevent self-pollination. One flower he found was puzzling, as he couldn't find out how it was pollinated. Finally he gave up, but predicted that there must be an insect with 11 inch mouthparts that would fit that orchid. 40 years after his death, the insect, a hawk moth, was discovered!

You often hear the charge that "Evolution is only a theory." It sounds as if the scientists just sit around thinking up fanciful stories. But I want you to realize that in scientific talk, "hypothesis" is way different from a "theory." A hypothesis is an idea that needs to be investigated. After it is studied and studied, it's either discarded or elevated to the status of Theory, such as the germ theory of disease, or the theory of gravitation. And Darwin, by spending 8 years studying barnacles and so on, contributed many of the observations that supported his hypothesis.

Emma Darwin was more religious than Charles, and she worried that they might not be together in heaven. She wrote him a letter about her fears, which he kept and treasured. He wrote in the margin, "When I am dead, know that many times I have kissed and cried over this." Nevertheless they had a peaceful family life. They often played backgammon in the evenings, Charles keeping score and pretending to be angry if Emma won. Although they had many servants, they paid a lot of attention to their children, which was unusual among the Victorian upper class. That's another thing I admire about Darwin: He was a good father, enlisting his children to help him collect plants or study earthworms, and telling them stories of the Beagle voyage. And when 10-year-old Annie died in 1851, probably of TB, Darwin was uncharacteristically eloquent in describing his grief.

After 20 years of studying barnacles and procrastinating over writing up his theory, a bombshell struck. Someone else had independently figured out natural selection! Alfred Russell Wallace, from the jungles of Indonesia, wrote to Darwin asking for his comments. Shocked to think that someone else might publish first and all his own work be for naught, Darwin consulted his friends. They came up with an honorable solution: publishing a joint paper. This was done in the Journal

of the Linnean Society in 1858, with Darwin's book, *The Origin of Species*, following in 1859.

What of evolution today? For me, it's essential that its concepts be taught in biology classes, because it's the glue that connects so many lines of evidence. What is it that really ticks people off about evolution? To me, it just means that things have ancestors, so what's the big deal? Our former minister, Dick Langhinrichs, in a sermon, mentioned two things. The first is that if we got here by chance, there's no room for awe and wonder. I don't buy that! Who can remember Carl Sagan in his "Cosmos" program saying: "We are made of star-stuff!" Wow! And remember Darwin's words I read earlier: "There is grandeur in this view of life....."

The other objection Dick pointed out was that if we are animals, that excuses all sorts of bad behavior. I don't buy that, either. Couldn't we make clear that yes, we are animals, but we are special: we have brains, and need to use them. (I seem to remember my mother saying something along those lines!)

In 2007 a new creationist museum was opened in Kentucky, right across the river from Cincinnati. It claims that the earth is only 6000 years old, dinosaurs lived at the same time as people, and all animals were vegetarians until Adam and Eve sinned. Thank goodness some people organized a protest. They arranged for an airplane to tow a banner that said "Thou Shalt Not Lie!" I'm not sure that elevates the discussion any, but we do need to hold firm, for instance, when the school system

adopts new science textbooks. In Southwest Allen in the 80's some folks didn't want the 4th graders taught about fossils. It's important to pay attention, and speak up!

So here's my fantasy: what would I say if I could have dinner with Charles Darwin? Or maybe I'd take a few circuits with him around his garden on the path he called the Sandwalk. If he started to tell me about barnacles, I'd listen politely and learn all I could. Then I might say:

"I wanted to tell you how much I enjoyed your account of the Beagle voyage. One thing that stood out was how much you were revolted by the cruelties of slavery that you observed in Argentina. You knew that the US finally abolished slavery in 1863, but it took another hundred years to secure the right to vote for black people. And one was even elected President!

In South America you found a fossil ground sloth and you were correct in thinking that it was the ancestor of modern one. You knew about *Archaeopteryx*, discovered just two years after the Origin was published. Many more feathered dinosaurs have been discovered in northern China, and an early ancestor of whales called *Ambulocetus* showed that they evolved from land animals. Even more recently a transition between fish and amphibians, called *Tiktaalik*, was found near Greenland. And many primitive hominids have been found in Africa, showing that you were right that we have a common ancestor with other primates.

It would have been wonderful if you'd have known about the experiments of Gregor Mendel, which were in fact published during your lifetime. Maybe you just didn't read German! You were puzzled about the mechanisms of inheritance. Now we've learned that every cell's nucleus contains structures called chromosomes, one from its father and one from its mother. And in 1953 it was discovered that these genes are made of DNA, shaped like a double helix. The truly amazing thing that DNA is found in all animals and plants!

More support for your theory comes from the geological theory of continental drift. This was only accepted in the 1960's, although I bet you had noticed how South America seems to fit into the west coast of Africa. Now we think that all the continents were together, in a huge continent called Pangea, which broke up during the Age of Dinosaurs. That explains why dinosaur fossils have been found on all continents: their ancestors were separated when the continents broke up. It's funny that it took so long for that theory to be accepted. As he did on reading your theory, maybe your friend Huxley would have said: "How very stupid, not to have thought of that!"

I admire you for keeping up your work despite feeling so sick much of the time. Remember getting bitten by the "benchuca" bug in South America? In 1909 that insect was found to be the vector for a blood parasite, causing "Chagas' disease" which you may have had, causing all your gastrointestinal symptoms. To this day it is not easily cured.

You'll be amused to hear that the controversy over the age of the earth isn't dead. But you have many defenders who speak up, if school science books omit the study of evolution. And many of those defenders are Unitarians. I know that late in life you said you were an agnostic. I'd like to welcome you back to the Unitarian fold, where agnostics are welcome and science is given the respect it deserves."