Darwin Day – An Amazing Journey

By Karen Quinlan

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Editor's note: The opening words, children's story and sermon that follow are from a Sunday service at First Unitarian Church of Hobart, IN, part of a larger conference held in celebration of the 199th Birthday of Charles Darwin. Individuals and congregations seeking permission to use these items and other parts of the service will find contact information at the end of the article.

Opening Words When on board H.M.S. Beagle, as naturalist, I was much struck with certain facts in the distribution of the inhabitants of South America, and in the geological relations of the present to the past inhabitants of that continent. These facts seemed to me to throw some light on the origin of species—that mystery of mysteries, as it has been called by one of our greatest philosophers. On my return home, it occurred to me, in 1837, that something might perhaps be made out on this question by patiently accumulating and reflecting on all sorts of facts which could possibly have any bearing on it. After five years' work I allowed myself to speculate on the subject, and drew up some short notes; these I enlarged in 1844 into a sketch of the conclusions, which then seemed to me probable: from that period to the present day I have steadily pursued the same object. I hope that I may be excused for entering on these personal details, as I give them to show that I have not been hasty in coming to a decision.

…

No one ought to feel surprise at much remaining as yet unexplained in regard to the origin of species and varieties, if he makes due allowance for our profound ignorance in regard to the mutual relations of all the beings which live around us. Who can explain why one species ranges widely and is very numerous, and why another allied species has a narrow range and is rare? Yet these relations are of the highest importance, for they determine the present welfare, and, as I believe, the future success and modification of every inhabitant of this world. Still less do we know of the mutual relations of the innumerable inhabitants of the world during the many past geological epochs in its history. Although much remains obscure, and will long remain obscure, I can entertain no doubt, after the most deliberate study and dispassionate judgement of which I am capable, that the view which most naturalists

entertain, and which I formerly entertained—namely, that each species has been independently created—is erroneous. I am fully convinced that species are not immutable; but that those belonging to what are called the same genera are lineal descendants of some other and generally extinct species, in the same manner as the acknowledged varieties of any one species are the descendants of that species. Furthermore, I am convinced that Natural Selection has been the main but not exclusive means of modification. [1]

A Story for the Child in Each of Us "Ozzie and the Snortlefish" by Denny O'Neil.

NARRATOR: Once upon a very very long time ago—438 million years ago, more or less—there lived an ambitious young fish. This fish's real name was *Panderichtys eipistostege,* but since that's a bit hard to say, we'll call him Ozzie.

Ozzie did pretty much what his brothers, sisters and cousins did, which was to putter around the bottom of a pond, looking at the sand and dirt, waving fishy fins, and trying to keep from being eaten by larger fish. That was what bottom dwelling fish did in those days, and in these days too.

One morning, Ozzie was skimming along the ooze at the bottom of the pond when he met a sleeping snortlefish named Kumpfrumple. Kumfrumple had no friends because she was an extremely rude fish, as well as being lazy, ill-tempered and occasionally flatulent. But if Kumpfrumple had had friends, they would have called her Kump for short, and so shall we. Kump opened one eye, looked at Ozzie and said…"

KUMP: Hey stupid! You think you're better than me, right?

OZZIE: I beg your pardon?

NAR: Kump waved a very flat fin in Ozzie's direction and said:

KUMP: Those things growing out of your body: the rest of us fish don't have those, so you must think you're better than us!

NAR: Ozzie looked down at two stout appendages jutting from his flanks.

OZZIE: Oh these? You're wrong when you say I'm the only one who has them. Actualluy a lot of my relatives seem to be growing them too.

KUMP: What are they good for?

OZZIE: I've been wondering that myself. Mostly I use them to help guide me around the pond. I also rub them in the mud and sand, which can be fun if you're in a certain mood. But mostly I just use them to push and pull.

KUMP: Sounds dumb to me!

OZZIE: Last night I had a dream. I dreamed that someday I'll climb out of the water and onto the stuff that surrounds the pond: The not-water.

KUMP: The not-water! Preposterous! No fish has ever ventured into the not-water.

NAR: Ozzie sighed and turned away, wiggling his appendages. Then be began to speak again to Kump, with renewed conviction.

OZZIE: These strange things will grow thicker and stronger. I just know it! One day I'll use them to raise myself up out of the pond and to move about on the not-water by putting one ion front of the other.

KUMP: Does this dumb activity have a name?

OZZIE: Uh… I don't know.

NAR: Suddenly an idea stopped the little fish in his tracks.

KUMP: *Walking?* How does that sound—*walking.* I think it has a certain ring to it. If you ask me, it could catch on.

KUMP: That's it? All that trouble just to do this *walking?*

NAR: Ozzie was now bursting with energy. Racing around the ocean floor, he exclaimed:

OZZIE: We'll jump… We'll kick balls… We'll dance… We'll play ring-around-the-rosie.

KUMP: Awwwwww! What does any of that mean?

OZZIE: I guess I don't really know.

KUMP: It all sounds stupid! I mean, why would any sane fish want to do any of that?

OZZIE: To see! To learn! To explore! To understand! To become! I dreamed that we will change and change and change again. Some of us will soar high above the pond. Some of us will become mighty creatures a hundred fishes high. And some… some will become wise! The wise ones will come to know who they are and why they exist. They will understand everything that is, and they will celebrate everything they understand.

NAR: Kump settled back into the ooze, and with the slap of a fishy tail released a cloud of mud into the water.

KUMP: Sounds unlikely!

OZZIE: Maybe some of it is—and maybe not! We'll never know unless we climb out of the pond.

KUMP: Seems like a lot of bother with no guaranteed return. A smart fish will stay right here and enjoy life. Now you go swim out of here or *walk,* if that's what makes you happy. Me, I'm late for my nap.

NAR: And that's the end of our story. But you may want to know a little of what happened next: that afternoon the sleeping snortlefish was eaten by a much larger fish… and within a couple of hundred thousand years, a similar fate befell the entire snortlefish clan—which is why nobody's ever heard of them. Ozzie never did get out of the pond. But later, some of Ozzie's descendants did. How much of the rest of Ozzie's dream came true? That is yet to be seen.[2]

Sermon

One fine spring day back in 2001, I was out hiking in the mountains of eastern Kentucky. It wasn't a hike for fun; I was on the job, inspecting a site for which a permit application for surface mining had been filed. I was looking for potential habitat for threatened or endangered species, and my companion for this site visit was a mining engineer named Denham. Denham and I had worked together before, and despite the obvious differences in worldviews between a Kentucky-born conservative coal mine engineer and a Yankee Unitarian ecologist, we got along pretty well. He was around my age, and more progressive in his views on coal mining and the environment than many of the old-school engineers I'd worked with. Nevertheless, I was pretty surprised when, during the course of the day, he asked me the big question: "So, Karen, you're a biologist; what do *you* think of this evolution thing?" I told him that I thought the idea of natural selection was a pretty good way to explain the variety of life and how it all fits together. He replied that the idea made sense, for the lower life forms, but he just couldn't believe it extended up to us humans. If we weren't put in the earth as we were by God, then there didn't seem to be much of a point to our lives.

A press release on January 17, 2008 by the Institute for Humanist Studies said recent Gallup polls show that 43 percent of Americans reject the theory of evolution and instead believe that "God created human beings pretty much in their present form at one time within the last 10,000 years or so.""

February 12 marks the 199th anniversary of Charles Darwin's birth, and the 149th anniversary of the 1859 publication of Darwin's *On the Origin of Species*, which presented the scientific theory that populations evolve over generations through natural selection. Darwin Day sponsors hundreds of events in churches and schools across the nation this weekend, promoting the idea that evolution and religion are not mutually exclusive—and that evolution includes *us*.

We all know that Darwin came up with the theory of how evolution works. Natural selection is based on the idea that there are slight variations among individuals within any given species, and that these variations give rise to adaptation that can, over generations, create individuals that are different from the original. If the adaptation is something beneficial, that gives the individual that's different a better chance of survival in its current environment than the original, it has a better chance of producing offspring, which have a better chance of having the same adaptation and so a better chance of survival, and so on. A new species has evolved. And the original version, again over generations, may die out, or become extinct—or find another place to live where its particular adaptations make it a better candidate for survival. This is one of the sticking points between creationists and those who support the theory of evolution. A creationist will say that a woodpecker, for example, is so well-suited for its life among the trees, with its strong sharp beak, its long probing tongue, its stiff tail, short legs, and long curved toes, that it was designed for its particular lifestyle and placed into the forest as both were created. A believer in the theory of evolution will say that the woodpecker descended from other birds who had these adaptations and passed them along to their offspring, and so began to be able to live among the trees.

But this wasn't an idea that Darwin just pulled out of his imagination. Quite the opposite, in fact. He had to wrestle with it, for years, after making all those observations during his voyage. He had to reconcile what he saw with his creationist beliefs. He saw the birds in the

Galapagos Islands that we most often associate with his theory—finches on each island that looked so similar, but not quite the same. The iguanas on the islands were the same way—he found different colors of the same creatures on each island, and each population ate different things. He found fossils of huge animals on the coast of South America, animals that no longer lived but looked similar to some that did; he debated at length with himself why they looked so like living creatures, but not quite—and why they hadn't been picked up by Noah's Ark.

He found living animals and fossil remains where the structure of the specimens were the same (such as armadillos with their curved, segmented shells) but in sizes ranging from a under a foot long to over 20 feet long, depending on their habitat. He saw living rheas and guanacos as well as their fossilized remains, and noted that they represented a variety of sizes and colors. They were similar enough to be classified as rheas and guanacos, but each new group he encountered had something unique that made them just a bit different. So he began to note the usefulness of these differences to the animals in terms of their success at defending their territory and obtaining food or mates. And he didn't just study plants and animals. He found a bed of seashells at 12,000 feet in the Andes, above fossilized pine trees with marine rocks. He deduced that the trees had been carried under the ocean and later been raised high on the mountains. But this had to be an incredible motion, and if it occurred at the rate of modern geological changes, the Earth had to be older than he believed. If the earth had been created just as it was, and only 10,000 years ago, how did these seashells get way up there? He later visited Concepcion, where there had been a major earthquake that had raised the land surface by several feet, and thought again about what he had seen in the Andes.

He began to put it all together during the year after the end of the Beagle voyage. It started with those Galapagos finches, which he had collected specimens of, but he hadn't labeled which birds came from which island because he had assumed they were all the same species. As he sorted his specimens, he began to realize that they actually varied from island to island, that each island actually had its own distinct species! He found it very easy to imagine that all those birds had evolved from a common ancestor. Those living and fossilized rheas showed the same kind of geographic variation. It was observations like this that led Darwin to believe that species could change. But why would they?

Remember Darwin's framework, his worldview—the idea that everything had been created at once and hasn't changed since then was almost universally accepted. So for what reason would species change over time? These words are from Darwin's autobiography. "In October 1838, that is fifteen months after I had begun my systematic enquiry, I happened to read for amusement 'Malthus on population,' and being well prepared to appreciate the struggle for existence which everywhere goes on from long-continued observation of the habits of animals and plants, it at once struck me that under these circumstances favourable variations would tend to be preserved and unfavourable ones to be destroyed. The result would be the formation of a new species."[3] Wow. Talk about an epiphany!

This was Darwin's other journey—to make sense of the things he was observing, within the framework of the accepted belief that all living creatures were placed onto this earth in the exact form that they exist in today. He tried—oh, how he tried—to make what he was seeing and learning fit into that framework. He had been chosen over some other naturalists to go on the Beagle voyage because he had been studying to be a clergyman—he was more likely

than some others might have been to uphold the biblical view of creation. But during the journey after the voyage, he followed his reason and his gut, stepped outside the box of current understanding, and called it like he saw it. As Ozzie said, "Some will become smart. They will know who they are and why they exist. They will understand everything that is and they will celebrate everything they understand."

Reflecting on the amazing journeys of Darwin's led me down the path of thinking about another amazing journey, one that has grown out of his ideas. For at the heart of the idea of evolution lies the idea that we are born of a set of one-celled ancestors swimming in that primordial soup of primitive earth, and those ancestors were born out of the elements around them coming together to form life. And those elements? They were born of nothing less than the stars themselves. Look beyond the origin of species to the origin of life, and allow the realization that you and I and everyone and everything around us were born of the stars sink in.

The amazing journey of our evolution is far longer than the 40,000 years since the emergence of modern *Homo sapiens*. It's longer than the 2.6 million years since the development of the first humanoid-type creatures. It's longer than the 438 million years since Ozzie and his/her cousins started developing the appendages that eventually differentiated into arms and legs. It's longer than the 700 million years since the first multicellular life form. It's even longer than the 4 billion years since the first one-celled bacteria emerged in the waters of our young planet. The universe is 15 billion years old, as are the elements and particles that make up our bodies and everything around us. For out of the primordial flaring forth of unimaginable energy out of the Infinite Mystery that some call the Big Bang and others call the Great Radiance was born all of the hydrogen that ever was and ever shall be. And within the burning masses of stars that lived and died before our sun was born every single atom that exists in the universe today. And now, 15 billion years later, there's us. A species of beings capable of reflecting back on our own creation and evolution, and hungering to do so. A conscious, aware presence on our living earth, looking up into the heavens with wonder in our souls, looking at our own presence among the stars with the awesome knowledge that they are our ancestors.

A reading for 8 voices:

1. "Twinkle twinkle little star, how I wonder what you are." Two hundred years ago, parents and grandparents began teaching their children that simple tune. Generation upon generation of children have since gone out at night and melodically given voice to their wonderment. What, if any, answers did they receive then—and what answers do we give them today?

2. We humans have always wondered about the stars. We have yearned for relationship with the vastness and seeming permanence of the night sky. And we have told stories which did indeed assure us of such a relationship. To some peoples, the stars mapped constellations of the gods and recorded the gods' adventures. To others, the stars were pinprick holes in the canopies of the heavens that allowed the glory of their One God to shine through.

3. For many, the stars revealed something comforting about the passage that awaits us all. Tribal peoples, all around the world, saw evidence of ancestry in the stars: for them, the stars were campfires of those who had crossed over the threshold of death. A contemporary Native American poet, Joy Harjo, gives voice to this ancient perspective:

> I can hear the sizzle of a newborn star, and know that anything of meaning, of fierce magic, is emerging here. I am witness to flexible eternity, the evolving past. And I know I shall live forever, as dust or breath in the face of stars, in the shifting pattern of winds.

4. Humans have invented a multitude of ways to nurture a personal relationship with the stars. In 1943, the French author Antoine de St. Exupery wrote a book that is still read and loved by children and adults—and that transforms our regard for roses and baobab trees as well as stars. The hero of this book had his home in the stars. Toward the end, the Little Prince spoke these words to his new-found human friend on Earth:

> In one of the stars I shall be living. In one of them I shall be laughing. And so it will be as if all the stars were laughing, when you look at the sky at night.

5. Today we have a new myth about the stars presented to our youth in western culture. Whether we be kids, parents, or grandparents: many of us became teary-eyed when we watch the Lion King speak these words to his adventurous young son:

> Simba, let me tell you something that my father told me. Look at the stars. The great kings of the past look down on us from those stars. So whenever you feel alone, just remember that those kings will always be there to guide you—and so will I.

6. The progress of science has barred us from a literal understanding of the words spoken by the Lion King, or the Little Prince, or the early biblical writers, or by our own ancient ancestors gathered around fires at night. In the late 1800s, scientists first discerned that stars were not campfires or former kings or holes in the heavens but rather, "big burning balls of gas," and that our sun was a big burning ball too. Soon scientists calculated that those big burning balls were "billions of miles away"—and, later, that the stars in distant galaxies were billions of LIGHT-years away. Yet in the late 1950s, something happened that gave all generations hence an opportunity to have it all. We could have scientific awareness AND a deeply felt and comforting relationship with the stars.

7. A half-century ago scientists began to discover that the intuitions of the ancients were correct: stars are, indeed, our ancestors. Generations of giant stars, who lived and died before our sun and our planet were born, created inside

their fiery bellies all the atoms — other than hydrogen — that now compose our bodies and the bodies of all living creatures. These ancestral stars, these cosmic cauldrons, created all the atoms of oxygen that now give us breath, of calcium that bind our bones, of phosphorus that light up our neurons, and of silicon that give form and solidity to the very earth beneath our feet. In the 1960s, Joni Mitchell celebrated this scientific discovery, in an anthem that has empowered a whole generation:

> We are stardust, billion year old carbon. We are golden. And we've got to get ourselves back to the garden.

8. Today, we have the opportunity to pass through our culture's adolescence of doubt and spirit-draining materialism. We now can celebrate that stars ARE "big balls of burning gas billions of miles away" AND that generations of stars who lived and died before our sun was born are, quite literally, our ancestors. This is an embodied awareness, a tangible ancestry that celebrates the billion-year-old carbon within our very cells. Once again we can look up at the stars and know who we are. A quarter century ago, the astronomer Carl Sagan expressed this modern relationship with the stars in a way that is still unsurpassed. He concluded his television series Cosmos with this grand exultation:

> We are the local embodiment of a Cosmos grown to self-awareness. We have begun to contemplate our origins. We are star-stuff pondering the stars![4]

We have evolved to the point that we can know and marvel at our own story. What an amazing journey from darkness into light, from stillness into life, from space to water to land, from one-celled to many-celled to differentiated to conscious! And what a wondrous expression of the interconnected web!

With his keen observations, his ability to reason, and the courage to formulate and articulate a theory that went against all the current dogma, Charles Darwin gave us a previously unimagined understanding of our human roots, and a connection with all living things on this earth. And in so doing, he gave us the tools to delve even deeper, to question other “truths”, to discover other truths. We’ve learned to apply those tools on our quest toward an even wider understanding of our origins, to the level of our connection with the entire universe. And we have Charles Darwin to thank for it.

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1. Charles Darwin, *On the Origin of Species,* http://www.classicreader.com/booktoc.php/sid.2/bookid.107/, Introduction.

2. Denny O’Neil, adapted by Connie Barlow, http://www.thegreatstory.org/snortlefish.pdf

3. Charles Darwin, *The Autobiography of Charles Darwin,* http://darwin-online.org.uk/content/frameset?itemID=F1497&viewtype=text&pageseq=124, p.120.

4. Connie Barlow, *The Great Story,* http://thegreatstory.org/stardustprelude.html