

What Kind of Creature Are We?

The question posed by the title of my talk this morning is one that has been thought about and written about for thousands of years. Many answers have been proposed - by theologians philosophers, scientists, and, I suspect, a host of others. I am aware of some of these answers but I don't wish to discuss any of them this morning. Instead, I will propose yet another possible response to the question posed by my title.

Some time ago, specifically October 30, 2011, I gave my first talk here at UU. It's title was "Our World of Wonder." Toward the end of that talk I had suggested that an appropriate human response to the fact that we exist at all would be an attitude of wonder, awe, gratitude, and humility. Now, while those four words used in this manner are mine, similar comments have been made countless times by many people--both ancient and modern. I would like this morning to expand the thought behind those four words and ask two fundamental questions. One, if those words have any validity at all do they in any way define or even suggest who we are? If they do, then the next obvious question is, "Just what kind of creatures are we?"

Here are two very different views. First, the Biblical book of Psalms declares that we are creatures created a little lower than the angels. Now that's a pretty heady pedigree. On the other hand, a recent study examining life in the 515 million - year - old Burgess Shale fossils of Canada suggests that our likely vertebrate (meaning creatures with a backbone) ancestor was a small creature called Pikaia. Now, Pikaia is about as far removed from the angels as you can get and she had only the faintest beginnings of a backbone. She was only about one and one-half inches long and was a worm-like creature that burrowed in bottom sediments. She was soft bodied but did have an ancestral supporting structure which was the remote antecedent to our present-day backbone or vertebral column. Take your pick between these two options; angel or worm?

Here are two other ways of responding to the question: What kind of creature are we? Alexander Skutch was a well-known, self employed ornithologist and naturalist who spent most of his long life on a farm he created in the wilds of Costa Rica. He died a few years ago just short of his 100th birthday and I'm fascinated that he had just made his next six months dental appointment. I think that's just wonderful! In any event, here's a comment of his: "The more we reflect upon the long ages, the immense effort, the struggle, and the suffering that we needed to make us what we are on a planet as richly endowed as Earth, the more the thoughtful, generous person appreciates and is grateful for this inestimable heritage." This view would seem to place us somewhat closer to the angels than to the worm.

A somewhat different view is expressed by E.O. Wilson, certainly one of our greatest living biologists, speaking about the early appearance of a vaguely human-like creature that had just descended from the trees to occupy the African savannah

“...here is a chimera, a new and very odd species came shambling into our universe, a mix of Stone Age emotion, medieval self-image, and god-like technology. The combination makes the species unresponsive to the forces that count most for its long – term survival.” In other words, we are unique creatures, perhaps even strange creatures, whose long-term survival prospects are not good.

So, are we any closer to answering the question: What kind of creature are we? Probably not so let's take a different tack. I expect many of us have at least a faint or fuzzy understanding that planet Earth, in the past 500 million years, has experienced five massive bouts of extinction. Without getting bogged down in geologic details let's think about this for the next few minutes. The first extinction occurred about 444 million years ago and resulted in approximately 80 percent of marine creatures disappearing from the seas. There was no life on land at that time. In the words of Elizabeth Kolbert: “It...was a turning point in life's history – a moment when the rules of the game suddenly flipped, with consequences that, for all intents and purposes will last forever. Those animals and plants that made it through went on to make the modern world.” The British paleontologist Richard Fortey observed, “Had the list of survivors been one jot different then so would the world today.” The third extinction, 252 million years ago at the end of the Permian was the granddaddy of all known extinctions. By the time it was over, something like 90 percent of all earthly creatures had been eliminated. Think of that! Ninety percent of everything! Gone!

The most recent extinction, the Cretaceous extinction, occurred only about 65 million years ago. The entire lineage of the then dominant dinosaurs, with the exception of what became our birds, along with 70% of all other creatures were driven to extinction. Meanwhile...remember our little worm, Pikaia? It was, no doubt, holed up in caves and burrows. And here we are! Not only because a 6 mile diameter rock probably moving about 45,000 miles per hour that smashed into the earth and helped clear the way but also because no similarly destructive event has occurred in the last 65 million years. In other words, “everything and everyone alive today is descended from an organism that somehow survived that impact.” To quote Scott Richard Shaw, “It's certainly clear that there was no inevitable or rapid progression toward humans.”

Or, to put this perspective somewhat differently I will quote from a truly remarkable book written by Yaval Noah Harari in 2014 entitled “A Brief History of Humankind: Sapiens.” “Our closest living relatives include chimpanzees, gorillas and orang-utans. The chimpanzees are the closest. Just 6 million years ago, a single female ape had two daughters. One became the ancestor of all chimpanzees, the other is our grandmother.”

Let's pause here just a moment. I hope we now have at least some sense of the utter improbability of our existence based solely on the premise that somehow our unimaginably remote ancestors had to live through five horrendous cataclysmic extinction events of the past 500 million years in each of which the Earth lost more

than half of its species. But...as improbable as that may be that is only a tiny portion of the wonderment surrounding our existence.

Our universe, in round numbers, is about 15 billion years old and our solar system is between 4 and 5 billion years old. Unimaginably hostile events occurred throughout those billions of years. And, just to keep in the back of our minds: (1) there are billions (9 zeros) of stars just like our own sun within our own galaxy, (2) there are trillions (12 zeros) of other galaxies, and (3) each of these galaxies has billions of stars many of which are likely similar to our sun. As a result, is it surprising that many astrophysicists believe life forms are highly likely to exist elsewhere in our or other universes? So then, how did WE end up HERE? All we currently know is that somehow we did!

To return to our original question then, what kind of beasties are we? I will suggest three primary attributes that characterize us. First, as I have already described, we are improbable creatures – improbable beyond our human capacity to fully understand. But there is still one more chapter to add to this improbability feature. Question. What percent of all kinds of creatures that at some point have existed on earth are now extinct? Any guesses? This may be hard to believe but the answer is somewhere between 99.0 and 99.9 percent. We are in very exclusive company! It would certainly seem that evolution is not a steady approach to an ever higher perfection but rather is “an unpredictable process in which “the best” may be suddenly exterminated by a catastrophe.” And, it is no doubt absolutely certain that sooner or later, as has happened many times in the past, planet earth will once again be impacted by some kind of major catastrophe. Perhaps even one of our own doing.

One final thought dealing with the improbability of our existence. According to the greatest evolutionary biologist of the last century, Ernst Mayr, “Massive molecular evidence is confirming that the human species is, indeed, closely related to the African apes but...to everyone’s surprise the chimpanzee is more closely related to humans than it is to the gorilla. Yet, chimps and humans differ profoundly in brain development and associated behaviors.” What, then, does this suggest? It suggests that our genus, Homo, did not evolve as a singular, distinct whole. There were many evolutionary dead ends and branches to our evolution. Our evolutionary tree is more like a bush. In fact, just 100,000 years ago, a literal blink of the eye in earth time, at least six human species inhabited the earth.

OK. I hope I have convinced at least some of you that we are, indeed, highly improbable creatures. Now I will suggest that we are also very strange creatures. This discussion could take many directions but I will limit my remarks to just two examples neither of which, I suspect, are widely known.

Here’s the first example. These remarks are adapted from a recent book by E.O. Wilson. “After eons of time, the direct antecedents of our species, Homo sapiens, won the grand lottery of evolution.” Among other of our attributes, we tend to think of ourselves as finely attuned to sensing our environment. Think, for example, of the

Native American who reads the landscape like we read a book. Or, perhaps the wine connoisseur with his or her exquisitely developed taste buds. Yet, in Wilson's words, "we are chemosensory idiots." In other words, our chemical detection abilities are very, very poor. By comparison, most other organisms are geniuses. More than 99 percent of all animals, plants, fungi, and microbes rely exclusively or almost exclusively on using a variety of chemicals to communicate with members of the same species. Now then, did you really hear what I just said? Did you notice that I mentioned not just animals but also that plants, fungi, and even microbes communicate and do so chemically? Is that truly possible? Do all these creatures communicate like this routinely? The answer is yes and yes. We are surrounded by all kinds of chemical "voices" to which we are absolutely clueless. Let's briefly imagine that we had the ability to sense some of these chemical voices as vividly as does the rest of life that surrounds us.

"You are thrust instantly into a world far more dense, complex, and fast-moving than the one you left behind or even imagined. This is the real world" of all life forms on Earth. "Other organisms live in it but until now you have only lived on the edge. Billowing clouds lift off the ground and vegetation. Odorant tendrils leak out from beneath your feet. Breezes pull all this up past the tops of trees, where in stronger winds the tendrils are quickly torn apart and dissipate. Below the ground, confined by litter and soil, wisps arise from rootlets and fungal (strands), then seep through nearby crevices. The combinations of odors vary from site to site, separated at distances as short as a millimeter (one twenty-fifth of an inch) away. They form patterns and serve as guideposts – used by ants and other small (critters) all the time but beyond your meager capacity as a human. In the midst of the background odor field, rare and unusual chemicals flow off in...streams and expand in ... bubbles. These are the chemical messages emitted by thousands of species of small organisms. Some...serve predators as a guide to prey, and equally they serve prey as a warning of approaching predators. Some are messages to others of the same species. 'I'm here,' they whisper to potential mates and ... partners. 'Come, come, please come to me.' To potential competitors of the same species...they warn 'You're in my territory. Get out.' " And so on. But we are oblivious to it all. If we have a dog we have at least a glimmer of understanding that it lives in a world of odors we have no access to at all.

In short, according to Wilson, "the evolutionary innovations that made us dominant over the rest of life also left us sensory cripples. It rendered us largely unaware of almost all" the other creatures with whom we share planet Earth "much of which we have been heedlessly destroying" at least in part because we do not, can not, "tune in" to their voices. We just don't hear them.

Now here's a very different reason the human creature is so strange. It's a story taken from a fascinating book entitled "Flowers - How They Changed the World" written by William Burger. It illustrates our extraordinary capability to understand our physical world using only our eyes and our brain IF we pay very close attention. Several thousand years before county agents and university ag experts came on the

scene potato farmers in the mountains of Peru and Bolivia accomplished an astounding feat.

“For perhaps thousands of years, potato farmers, high in the Andes mountains, stayed up all night during the evening of their shortest day, June 21. They waited through the frigid mountaintop evening to view the Pleiades as they rise in the east, just before sunrise. The Pleiades are a group of stars of varying brightness. These stars are not only brighter on a really clear evening, but it seems as if there are more of them. But why spend a frigid night waiting for the Pleiades to rise? The reason, the farmers gave, is to determine when to plant their potatoes. In normal years, they plant their potatoes early; and their knowledge of the seasons tell them when to do that. But in bad years, in El Nino years, the rains are unreliable and sparser. For such a rainy season the farmers should plant their potatoes later than normal. Watching the rising stars will tell them if such a year is imminent.

Attempting to understand these ancient practices, anthropologists, working with climatologists and with satellite data, recently tried to find a scientific explanation for what these farmers had been doing “ for “centuries. Sure enough, during an El Nino year, very thin high-altitude clouds form in this part of the world, clouds that are so tenuous that they are not visible to the naked eye. But by looking through the atmosphere at the horizon from their high-elevation points, the farmers can see the effects of these clouds in the diminished brilliance of the Pleiades. During normal years the Pleiades rise clear and bright in the east; but in El Nino years the Pleiades are not so clear, and it appears there are fewer of them. This is a signal to plant potatoes later in the year. These farmers have been predicting a diminished El Nino rainy-season five months in advance,” probably for thousands of years. How wonderful! How very strange! Imagine! No NASA satellites. No computer programs. Siri had not yet been born. Goggle didn’t exist.

So, we have proposed that we humans are both highly improbable and very strange creatures- sharing characteristics with no other earthly life forms. I believe there is yet one more defining human characteristic and, I suggest, it is the single most defining feature of all.

It would seem quite clear that the sixth major extinction of the last 500 million years is well underway. If so, it will be the first grand extinction to have been caused by a single biological species - us. How much more defining can you get? We may be nature’s supreme intellectual achievement but we have, unfortunately, also become her most profound threat. Remember E.O. Wilson’s description - a very odd species with god-like technology? Or, in the words of Carl Safina, “From atom to opera, malice to medicine, we are by far the most magnificent, menacing creatures of all time.”

Most menacing creatures of all time? Here is U Thant: “As we watch the sun go down, evening after evening, through the smog, across the poisoned waters of our native earth, we must ask ourselves seriously whether we really wish some future universal historian on another planet to say about us: ‘With all their genius and with

all their skill, they ran out of foresight and air and water and ideas,' or, 'They went on playing politics until their world collapsed around them.' ”

Every generation is the current caretaker of all of nature on our fragile planet. We must assume this responsibility as if our lives depended on it. And, of course, our lives do depend on it.

But, let's be very clear at this point. Our task is not to save the planet. Earth has survived more than four and one-half billion years of constant, at times extravagant, change. It doesn't need us to save it. The Earth will continue to do quite well, thank you kindly. Moreover, microscopic life, bacteria, protozoans, etc. which represent the overwhelming majority of life on our planet, “will scarcely miss a beat” in the words of Robert Hazen.

If we choose to be concerned, if we choose to use our extraordinary intellectual gifts in a responsible manner, our concern should be for our human family and for the whole of creation with which we are blessed and on which we are utterly dependent for our survival. To quote Hazen again, “We humans have the sobering potential, through either our thoughtless actions or our equally thoughtless inaction to heap untold suffering and destruction” on our own and many other species. We have the joy, we have the responsibility, and we, alone of all earth's creatures, have the capability to provide for the future human livability of our world. Perhaps, just perhaps, that ancient psalmist who proclaimed us to be just a little lower than the angels may not have been too far off the mark.

So there we have it. Highly improbable, in many ways very strange, and wondrously and fearsomely endowed. If that is in any sense an accurate description of who we are then I believe it does suggest the responses I first mentioned five years ago: Wonder, awe, gratitude, and humility.

Wonder. Wonder that we are here at all.

Awe. Awe at the magnificence of our planet - a tiny oasis in space.

Gratitude. Gratitude that we have the intellectual capacity to understand that we are totally dependent on the natural world for our survival.

Humility. Humility that we are such improbable creatures, limited in many ways, yet with such god-like powers.

Finally, rejoice. Rejoice at your good fortune of being alive. Rejoice that you exist on the only planet we know where life exists.

