

# In all the universe, there is only one of us

by Mark Pavilons

?... And in all of that, and perhaps more, only one of each of us.?

Dr. McCoy, Star Trek, Balance of Terror

If you think that you're not special in some way, just pause and reflect on that quote for a minute.

Our Milky Way galaxy is estimated to contain upwards of 400 billion stars and at least that number of planets. Our ?home??galaxy is massive, estimated at 200,000 light years in diameter.

To put it in perspective, if our solar system were the size of a quarter, the Milky Way would be equivalent to the contiguous United States.

The universe is estimated to contain 2 trillion galaxies, thanks to data from Hubble.

That number is changing, and could be a lot higher. You see, because space is so vast, many of the stars we see at night may no longer exist. They have burned out long ago, and the twinkle we see is lost starlight, which is only now reaching us here on Earth. Scientists say looking at the universe is like looking back through time.

Nevertheless, we know that we are here, right now. We exist, and our planet has existed for roughly 4.5 billion years.

Just how did we get here?

Well, most believe that the Big Bang created everything. They theorize that ?everywhere??started at one central point, and the entire universe has been moving outward ever since, growing larger and spinning, forever moving. As far as scientists can tell, the universe began 13.8 billion years ago.

Back then, something ignited a chain reaction, causing light, energy and atoms to come together to form stars, galaxies and planets.

How it all formed is still up for speculation but there's some common ground on this.

Our solar system, roughly 4.6 billion years ago, was just a cloud of dust, gas and other stuff. As it all began to spin and generate gravity, the sun formed in the middle of this nebula. The sun's energy and gravity caused the material flying around to clump together.

Earth's rocky core formed first as heavy elements collided and stuck together. Dense material sank to the gooey centre and the lighter crust formed. Our planet's magnetic field developed and this helped gravity capture gasses that became our early atmosphere.

Scientists believe that our planet was hit by a large object, smashing off a big piece which became the moon.

Gases from volcanoes spewed into the atmosphere and passing comets crashed, dumping water and ice behind.

Because our earth is in the most ideal location away from the sun, the perfect conditions arose for life.

And the rest, as they say, is history.

Of course, there was one very significant moment, some billions of years ago. A single cell ? maybe an amoeba or microorganism ??opped up in the ooey, gooey swampy ooze. Life began. Perhaps the conditions were just right for this ?instantaneous emergence of life.? It wasn't until cyanobacteria evolved roughly 2.4 billion years ago that life transformed noticeably. These were the first photo-synthesizers, making food using water and the sun's energy, releasing oxygen as a result.

The ?Great Oxidation?Event??took place and cells began ?living together.??By carrying out various functions they grew. Sponges were likely the first creatures on earth, appearing some 800 million years ago. The sea floor became littered with critters from then on.

By the end of the Cambrian era, all kinds of things were running around, creating the world's first food webs or chains.

Yes, our evolution took billions of years. A very slow, yet somewhat efficient process to be sure.

The reason I?provide this tale of our humble beginnings is to show just how improbable and how precious life is.

A million things could have taken place to alter Earth's progress, at any point in time over those years. As witnessed by the dinosaurs, the earth was wiped clean and life started over.

The whole thing is mind-boggling. And humans (homo sapiens) have only been running amok for roughly 300,000 years, with the first settlements springing up only 10,000 years ago.

So ?modern humans? ? at least those that wore clothes and spoke ? have only been around maybe 7,000 years.

In that time, we have established ourselves as the alphas, the leaders of the pack on terra firma.

I direct your attention to the chronology of lineage. At one point your ancestors and mine were born. They would date back almost to the beginning. If our great-greats didn't have great-greats, none of them would have been here either.

You and I would have to have had an unbroken, healthy family tree.

I couldn't calculate the odds of that, but let's just say it's as big as our galaxy.

So no, none of us are here ?by chance.??It was determined through select, strong lineage. One could say we were all ?born??that very day in the pool of slime, along with our ancestors, the microbes.

After all, if they didn't emerge, we wouldn't have either.

It's all very sobering.

We've beaten the odds. We did something no one else has in our solar system. Every time we look up at our sun we should give thanks for creating life on our planet.

Of course, we could send our thanks to that divine entity who, a very long time ago, snapped His or Her fingers, and kicked off the greatest show ever.

Again, I direct you to the quote at the top of this column.

Hope you're feeling special. Have a nice day.