

Will We Ever Know?

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Recently while driving or doing exercises I've listened to artificial intelligence lectures by Nobel Prize winner Richard Feynman, who died in 1988. It's Feynman's thinking and writing brought to life by computers that imitate his voice. I've also regularly taken in talks by prominent living scientists Sean Carroll, Brian Cox, Neil deGrasse Tyson, Brian Greene, Leonard Susskind, and others.

Two themes emerge: interstellar travel is *impossible* and the likelihood of intelligent aliens is closer to zero than trump's IQ.

These pessimistic views are based on current technology and understanding and cannot be trusted, to say the least!

Some brainy individuals, including John Horgan, author of *The End of Science: Facing the Limits of Knowledge in the Twilight of the Scientific Age*,¹ even think naked apes know virtually all that can be known about how the Universe works, thus foreclosing new discoveries and insights.

Believing we in the 21st Century have everything figured out is similar to ancients crediting themselves with knowing how things work when they assigned creation and control of phenomena to one or another of a host of deities, depending on ethnicity. Greeks had Zeus; Romans, Jupiter; Norse, Odin; Israelites, Yahweh; and so on.

Today, Pastafarians have the Flying Spaghetti Monster.

Certainty about current science presumes discoveries unimagined today will *never* be made. *Never is a long time*. It seems to me the limitations on methods currently employed to travel beyond Earth will *inevitably* be surpassed. How? Nobody knows...yet.

Obstacles are formidable. Prominent among them is the weirdness space-time holds for beings traveling at or beyond the speed of light which so far seems to be a limit on how fast things *can* move. Even this is suspect in my humble opinion. Absolutes often are shown to be false. But successfully exceeding the speed of light will bring other problems, at least according to current understanding.

Our knowledge is gigantic but it's only since the 16th century we've come to appreciate basic facts such as the Earth and other planets orbit the Sun. Much more recently we've learned that our Sun is one of hundreds of billions of stars in the Milky Way, itself one of two trillion galaxies.

¹ Addison-Wesley, 1996.

And it appears most stars have planets, many orbiting distances from their stars considered to be in what NASA calls The Habitable Zone.

Brilliant thinkers nevertheless assert life arising anywhere even under Earth-like conditions is improbable to the point of impossible. Earth formed about 4.5 billion years ago and within a billion years life appeared. That's fairly rapidly. Homo sapiens appeared in Africa about 3.25 billion years later and soon migrated around the planet.

Sadly departed paleontologist Stephen Jay Gould said complexity in life only became necessary on Earth when the abundance of simple forms made it a requirement of survival. Competition among the simple caused some single cell organisms to develop additional cells and begin competing with simpler forms. Complexity bred complexity and eventually produced us. This seems to me to be a natural progression anywhere life arises. Evolution is the rule not the exception.

Given the numbers, it's likely the Universe is teeming with life and intelligent life. That we haven't encountered forms that arose other places means *nothing*. And life—which is a difficult word to define—might take on forms completely different from what's present on Earth. Same with consciousness. We don't know! But that's not to say we'll *never* know. Never is a long time.

◆ AI Summary

To define life scientifically, consider the following criteria:

- **Cellular Organization:** Living organisms are composed of one or more cells, which are the basic units of life.
- **Metabolism:** Life involves chemical processes that convert energy and matter to sustain cellular functions.
- **Homeostasis:** Organisms maintain a stable internal environment despite external changes.
- **Growth and Development:** Living beings undergo regulated growth and development stages throughout their life cycle.
- **Reproduction:** Life can reproduce, either sexually or asexually, to create new organisms.
- **Response to Stimuli:** Organisms can respond to environmental changes or stimuli in their surroundings.
- **Adaptation through Evolution:** Over generations, life forms can adapt to their environment through evolutionary processes.

Mars is the only planet beyond Earth where we've searched the surface slightly—nearly imperceptibly—with roving vehicles. There are hints that microbes once existed, though nothing conclusive. But we haven't looked in

caves or other subterranean places where conditions might be more hospitable to life as we know it.

Although the surface conditions on Venus no longer will support Earth-like life, there is speculation that it might exist in the planet's upper cloud layers. Jupiter's satellites Europa and Ganymede have oceans thought to be larger than all of Earth's combined. Saturn's satellite Titan evidently has methane or ethane lakes and rivers.

Even if we explored with all our might and money, present technology and understanding mandate that we search very close to home. But that could change quickly.

Scientists are *real*² conservatives and need evidence before deciding without reservation that something exists. A good example is extraterrestrial planets. Many astronomers speculated they must be out there, and some even wrote papers explaining what they viewed as evidence, but it was only in 1992 that the first was located with certainty.³

Just 32 years later Wikipedia reports: "As of 4 June 2026, there are 6,298 confirmed exoplanets in 4,709 planetary systems, with 1,054 systems having more than one planet."⁴

Just today it occurred to me that given current technology and understanding, it is *impossible* to know whether life similar to what we have on Earth exists elsewhere. This includes spacefarers such as ourselves. Reason is we cannot possibly search through two trillion galaxies.

It's the agnostic position expressed by Carl Sagan. He didn't think the existence of god could be ruled out because it's *impossible* to look everywhere. God might exist in a corner we can't hope to view. But I think Sagan were he still with us would agree there is no evidence of god near enough to be discovered.

Pondering this has brought to mind a notion that landed in my cerebrum decades ago. Without a better name for it, I called it The Clap-Clap Theory. It goes like this: There are two general states in the universe. The first is insentient and includes solids, gases, liquids, even plasmas I suppose. Substances in this state are not aware of the world. Most everything is insentient and interacts oblivious to its surroundings. Rushing water might erode rock but the rock won't *know* it—neither will the water. Alive is the second state, and I'm using the term broadly. This includes everything from viruses to blue whales...on Earth and beyond...

² <https://tswrites.com/Conservative.Misnomer.THSchaar.2019.pdf>

³ <https://en.wikipedia.org/wiki/Exoplanet>

⁴ Ibid.

It includes us and other creatures who sense in at least a limited way their environments and react accordingly.

There are strata of alive; the most sophisticated level is *conscious* which implies interaction with environments and understanding. The term sophisticated pertains to complexity and refinement not superiority

Maybe calling the two categories animate and inanimate would be better.

We naked apes are the smartest forms we know of in this second state; we haven't discovered any other beings capable of what we have done, from philosophizing to landing on the Moon.

We think and are self-aware. Other animals appear to think in comparatively limited ways.

Over the infinity of time, the insentient exist with no concept of past, present, future. They are elements but they'll never know it. Or, at least that appears to be their reality. But who knows if a rock thinks? How could we ever know?

It is certain naked apes think and interpret the world. Time passes in this alive state and then everything dies, one way or another.

Over the infinity of time it's possible beings are born an infinite number of times; one with each handclap in a cacophony of applause by metaphor. Though this idea could be mistaken for reincarnation that isn't what I mean. There's no hierarchy of lives and no memory. Consciousness in my view isn't building toward a goal or perfecting something.

But it does mean although time passes unnoticed to the inanimate, the animate experience it; naked apes even categorize it as past, present, and future.

What it also means in my view is that consciousness is continuous even though it ends because there is no possibility of sensing the world when inanimate. Time passes imperceptibly to the insentient which makes it irrelevant.

It doesn't exist.

When the inevitable occurs the animate and inanimate alike are eroded back to atoms and fundamental particles by stars exploding into novas, black holes, or other destructive phenomena. What happens next is one of the great mysteries. Does it all go somewhere? If so, where? Where are all those ancient atoms now? Do they still exist?

No one knows.

With the old Universe dissipated or whatever, somehow another Singularity reaches an infinitely dense state...inflates to create a new Universe in an event referred to locally as The Big Bang.

Not an accurate term because nothing explodes, instead it *inflates*, and in space there is no sound. Here's how AI at Google states it: "Physicist Alan Guth proposed the theory of cosmic inflation in 1981, which integrates quantum vacuum fluctuations to explain how the universe originated and evolved. Inflation posits that the early universe underwent a brief, exponential expansion driven by the repulsive gravity of a "false vacuum."

Not clear to me.

I even read Guth's book *The Inflationary Universe*⁵ but it didn't penetrate my thick skull. Physics is what our world and existence is all about and truly I love it. But I'm not smart enough to understand what it teaches in more than a cursory way, though I try.

And it doesn't make sense to me. It's completely counter-intuitive to imagine *A Universe From Nothing*⁶ as Lawrence M. Krause explains or tries to explain in his book of the same name, which I've also read.

Was there ever a time when there truly was nothing? A time when there wasn't time?

So far, no one knows. But my common sense says: "NO!"

Not that I believe some sort of super being created everything. It's an absurdity to conclude something powerful enough to create and monitor everything everywhere somehow has always been without the same need to be created.

This returns me to the beginning. Assertions that we already know everything and that beings similar to us can't exist and that light speed won't be exceeded and that we'll never travel through interstellar space just aren't valid.

The evidence doesn't support them in the Sagan agnostic sense: We *haven't* and *can't* look broadly and deeply enough. *At least so far*. But I don't like absolutes.

Are physics the same in every one of the two trillion galaxies in our Universe? Experts seem to think so but why? And will we ever know?



⁵ Alan Guth *The Inflationary Universe* 1997 Perseus Books

⁶ Lawrence M. Krause *A Universe From Nothing* 2013 Atria Books