



SearchLites

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Anthropocentric Deception

by Dan Duda

from the April, 2014 issue of Penn Central,
the monthly newsletter of Central PA Mensa, used by permission

"Look again at that pale blue dot...The Earth is a very small stage in a vast cosmic arena... There is perhaps no better demonstration of the folly or human conceits than this distant image of our tiny world." - Carl Sagan, Pale Blue Dot

It's my personal feeling that the conceit of anthropocentrism still permeates much of scientific thinking today. Now, I have a deep respect for SETI and their mission, but I feel that their target may be too narrow. Their primary focus is "life as we know it" (LAWKI). And, of course, this is expanded to include the likely possibility that there may be life forms that deviate from what we might "know" or expect. From this, SETI searches for signals that may emanate from one or more of these prospective citizens of the universe that may have developed technology sufficiently advanced to signal their existence to us. So far, so good.

Now, in previous articles I've discussed the possibility, stated by many leading cosmologists, particle physicists, and other scientists, that the universe itself may have a consciousness of sorts. "... our knowledge of the universe is not something separate from the universe; it is part of the universe. Thus, for humans to know the universe is for the universe to know itself. As Carl Sagan put it, "Humans are the stuff of the cosmos examining itself." (*Psychology Today*, 4/30/2010) The quoted article speculates that the universe, somehow, has intentionally "engineered" consciousness into humans to foster awareness of itself.

The human body is a metaphor for a conscious universe. Take a living cell, for example, in our heart that acts in a way to help maintain a much larger life form - us. Does that cell really understand its mission or its role? Not likely. But somehow it has evolved and been motivated to perform its task, to our benefit. Might we be in a similar situation? Could we have been deliberately "engineered" to perform a function that we don't fully comprehend?

As far back as human history has been recorded it's clear that we have wondered about the meaning of our existence. The more we learn about our planet, the solar system, the galaxy and beyond, the more thrilled and confused we are about answers to the fundamental questions. Are we alone? What's it all about? Where did we come from and where are we going? Does anything really matter? It seems that this speculation is engineered into us as well.

OK, back to SETI. I'd like to see a search for "life as we do not know it." For example, consider the Sun. Think about the enormous mass; the rich variety of matter; the incredible dynamics, all beyond anything we can even comprehend. Might the Sun be alive and conscious, and maybe intelligent beyond anything we can even imagine? Could there be a way to search for this possibility - to look for life that would not emanate signals that would be naturally meaningful to us? Think about planets; the Solar System; nebula; galaxies; strings of galaxies. Consider the possibility that we are not the center of the conscious universe, but rather, part of what - the universe itself.

If we directed our search for these possibilities, what might we find? Now let's bring this discussion back to Earth. With the world population now over 7 billion and climbing rapidly, the old philosophical questions related to anthropocentrism are being transformed into very serious, real world questions about the impact of our species on this planet. The prose of Carl Sagan in the series *Cosmos* is haunting, and his warnings are becoming more prophetic every day. We need to carefully avoid being deceived by misinformation so that our focus and our resources can be deployed in solving real environmental issues rather than political decoys. In the immortal words of Carl Sagan, "We have arranged things so that almost no one understands science and technology. This is a prescription for disaster. We might get away with it for a while, but sooner or later this combustible mixture of ignorance and power is going to blow up in our faces."



Event Horizon

SearchLites readers are apprised of the following conferences and meetings at which SETI-related information will be presented. League members are invited to check our World Wide Web site (www.setileague.org) under *Event Horizon*, or email to us at info@setileague.org, to obtain further details. Members are also encouraged to send in information about upcoming events of which we may be unaware.

September 29 - October 3, 2014: [65th International Astronautical Congress](#), Toronto, Canada.

October 10 - 12, 2014: [AMSAT Annual Meeting](#), Double Tree by Hotel Hilton, Baltimore-Washington International Airport (BWI), Baltimore, Maryland.

November 9 - 12, 2014: [Tennessee Valley Interstellar Workshop](#), DoubleTree by Hilton Hotel, Oak Ridge, TN.

November 21 - 23, 2014: [Philcon 2014](#), Cherry Hill, NJ.

March 21 - 22, 2015: [Society of Amateur Radio Astronomers Western Conference](#), Stanford University, Palo Alto CA.

April 18, 2015, 0000 UTC - 2359 UTC: Sixteenth annual SETI League [Ham Radio QSO Party](#): 3.551, 7.0309, 7.2039, 14.084, 14.204, 21.306, and 28.408 MHz.

April 19, 2015: Twenty First SETI League [Annual Membership Meeting](#), Little Ferry NJ.

April 24 - 25, 2015: [Southeastern VHF Conference](#), Morehead, KY.

May 22 - 25, 2015: [Balticon 49](#), Hunt Valley, MD.

June 21 - 24, 2015 (tentative): [Society of Amateur Radio Astronomers Conference](#), National Radio Astronomy Observatory, Green Bank WV.

August 19 - 23, 2015: [Sasquan](#), the 73rd World Science Fiction Convention, Spokane, WA.

October 2015 (dates to be announced) : [66th International Astronautical Congress](#), Jerusalem, Israel.

April 16, 2016, 0000 UTC - 2359 UTC: Sixteenth annual SETI League Ham Radio [QSO Party](#): 3.551, 7.0309, 7.2039, 14.084, 14.204, 21.306, and 28.408 MHz.

April 17, 2016: Twenty Second SETI League [Annual Membership Meeting](#), Little Ferry NJ.

21 August 17 - 21, 2016: [MidAmeriCon II](#), the 74th World Science Fiction Convention. Kansas City, MO.

October 2016 (dates to be announced) : [67th International Astronautical Congress](#), Guadalajara, Mexico. ❖



SETI League executive director emeritus H Paul Shuch was joined recently at the National Radio Astronomy Observatory by Nobel laureate Dr. John Mather and his wife Jane. The 110 meter diameter Green Bank Telescope is visible in the distance behind them.



Also at NRAO Green Bank this summer, Executive Director Emeritus H Paul Shuch got together with astrophysicist Joe Taylor, K1JT. Joe, who shared a Nobel prize with his graduate student Russel Hulse for research at Arecibo involving binary pulsars, is best known to weak signal radio amateurs as the developer of the JT-65 digital signal processing protocol.



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Guest Editorial:

The Search Gets Harder

by Jill Tarter

For much of the 20th century, governments around the world wanted to boldly go where no man had gone before. More recently, though, austerity budgets around the world and political mindsets that view science with suspicion have threatened the survival of the kinds of projects that put humans on the moon.

I got my PhD in the 1970s, when we finally had the technology to begin answering the question that, for millennia, has boggled the minds of priests, philosophers, and anybody who's looked up to the stars: Are we alone? After all these centuries, I belong to the first generation that can begin answering that question.

I joined the search for extraterrestrial intelligence, helping to found the SETI Institute. The institute's searches were funded entirely by NASA until 1993, when a single senator terminated our funding. We've been raising funds privately since then. But a couple of years ago, we had to temporarily shut down because we couldn't secure funding to keep our operation going - and our operating cost is only \$100,000 a month, which is essentially a rounding error in a federal budget.

NASA itself, probably the best-known scientific institution on the planet, is under enormous financial stress, although it has fared better than some other agencies in recent budgets. Now, for the first time, American astronauts have to hitch a ride with the Russians if they want to get to space.

It is extremely worrisome to see politicians refusing to invest in science and technology when we need it the most - when our survival depends on our ability to use it to get ourselves out of the holes that we've dug. This dynamic is responsible, for instance, for the never-ending fight to secure funding for climate science.

We would all be better off if our elected officials could think ahead, not just to next year's budget, but tens, even hundreds of years down the line. Civilizations used to be able to take a longer view, simply because things changed less rapidly. (Remember, there was a 400-year gap between the printing press and the typewriter.) That's not the case today, when things are turning over in time scales of years, or even months. People are getting used to the idea that their tools will change. What they learn to use today, they're going to have to relearn to use three months from now. This is, fundamentally, a new point of view.

But there are still problems that have intrinsically longer time scales that are set by the planet and the laws of physics, such as the warming and cooling of the planet, shifting of the tectonic plates, desertification, and

so much more. If you want to solve our ecological challenges, you have to think in 500-year time scales. Other ambitions, like sustaining a colony on Mars or making contact with extraterrestrial life, are similarly long term in their outlook, if not quite 500 years away.

Taking the long view, the importance of education becomes clear. It's lamentable that individuals with decision-making power would in any way celebrate their ignorance of science and technology and our need to innovate. Another disturbing trend is the politicization of science of all kinds, degrading a field that is based on observation and fact by overrunning it with opinion and sentiment. Robust public education - not just in the sciences and maths, but also in language, history, and more - will ensure that students of today don't have these same blind spots and biases when it's their turn to control the levers of power.

Questions about our place in the universe, and how our behavior affects the planet, are what stimulate and sustain interest in science, just like the space race did in the 1950s and '60s. When it comes to my line of work, I believe that projects such as SETI can profoundly change the way we see ourselves and our relationships with other earthlings and our home world.

The Kepler Telescope, run by NASA, has led to more discoveries in the past three years about potentially habitable planets in the Milky Way than we'd previously found in decades. It has legitimized SETI in a way that we couldn't before, because now we can finally say, "If there's life anywhere, this is where it's going to be."

The work of NASA, the SETI Institute, and other foundations contributing to this research has given us this amazing opportunity to appreciate the Earth as one of probably billions of planets within our galaxy, and to appreciate our galaxy as one of hundreds of billions of galaxies in the universe. That is profoundly humbling.

I keep a bottle of champagne on ice in case we happen upon signs of someone else's technology - that is, extraterrestrial intelligence - during my lifetime. Now, I'm not talking about extraterrestrial salvation, or some message that explains the meaning of existence. Extraterrestrial life forms are not going to tell us how to solve our problems. What we're looking for is a proof of existence - likely an electromagnetic contact - rather than something on our doorstep threatening us. It will be a huge opportunity to learn about where we fit into the vastness of the cosmos. But we're not going to find it at all unless we transform into a global society - one able to see the big picture - and figure out how to survive as a technological civilization far, far into the future.

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New Horizon - Hubble Hunts KBOs

by Paul Gilster

reprinted from the [Centauri Dreams](#) blog by permission

My guess is that the public thinks of the Hubble Space Telescope largely in relation to deep space objects. The Hubble Ultra Deep Field is a case in point, a region of the sky in the constellation Fornax that is no more than a tenth of the width of a full moon, but one that contains 10,000 galaxies. An image of the HUDF augmented by near-ultraviolet data has had considerable play in the media, showing star birth in galaxies five to ten billion years ago.

The HUDF attests to Hubble's range, but we also know from Hubble's studies of objects in our own Solar System that it can support ongoing planetary missions. Astronomers will now use the space observatory to help find tiny objects against the background of an immense starfield in Sagittarius. After consideration of the mission and the value of the data it will return, the Hubble Space Telescope Time Allocation Committee has recommended that the instrument be used to search for a Kuiper Belt Object that New Horizons can visit after its flyby of Pluto/Charon in 2015, a search contingent upon results of a pilot observation program using Hubble data.

We have two Voyagers still sending data as they push into interstellar space, but only New Horizons has a fully functioning set of instruments and the capability of making the necessary course alterations to perform a KBO flyby. The problem has been to identify the target, a hunt that could begin no earlier than 2011 because KBO candidates needed to be converging on the region of space that New Horizons can reach after the Pluto/Charon encounter. The 8.2-meter Subaru Telescope in Hawaii and the 6.5-meter Magellan Telescopes in Chile have so far been deployed on the task but it looks like it will take Hubble to make the call.

For of the roughly fifty new KBOs that the Subaru and Magellan instruments have thus far identified, none is within range of the spacecraft's ability to maneuver. This is an extremely difficult search field, one that looks into the plane of the galaxy toward Sagittarius, and astronomers are searching for something that is both small and likely to be as dark as charcoal. But finding a target is important ' the Kuiper Belt consists of debris from the Solar System's formation, and we've never had the opportunity to get a close-up look at one of these objects.

If Subaru and Magellan haven't been able to find the right KBO, Hubble will try something different, turning at the rate that KBOs are predicted to move against the background stars. As this Space Telescope Science Institute news release explains, the result will be that KBOs will show up as pinpoint objects amidst a swarm of streaky background stars. Assuming the initial test observations ' 40 orbits of Hubble observing time ' show that the telescope can find at least two KBOs of the specified brightness, additional observing time covering a period of 156 orbits will be allotted to search a field of view the angular size of the full Moon.

Let's wish Hubble success because New Horizons is the successor to the Voyagers, like them involved in a journey that should captivate and inspire our culture. The more science we can get out of it, the better, even though putting a payload past Pluto/Charon is itself a grand accomplishment. As for Hubble, its efforts on behalf of New Horizons point to its previous discovery of four small moons in the Pluto/Charon system as well as its search for dust rings that might have compromised the mission. Just as Hubble has proven its worth again and again in terms of planetary science (and don't forget its contributions to the Dawn mission), we can hope for equally impressive accomplishments from the coming James Webb Space Telescope.



Fourteen and Twenty...
Copyright © 2014 by Dr. H. Paul Shuch

[Many of my poems are written as mnemonics, to assist my students in remembering specific equations, constants, and numbers. I came up with this one at the Society of Amateur Radio Astronomers annual conference in Green Bank WV this past July, when one of my colleagues was having difficulty recalling the exact frequency of the familiar 23 cm neutral hydrogen line.]

There's one special frequency you need to learn
Before your degree you are able to earn.
So memorize this, I respectfully beg:
It's fourteen and twenty point four oh five seven five one seven meg.

The hydrogen atom is really a trip.
Its spin on occasion will randomly flip
And each time it does, out a photon will slip
At fourteen and twenty point four oh five seven five one seven meg.

The hydrogen atom has taken its place
As the most abundant of matter in space.
One atom per cc, and it shows its face
At fourteen and twenty point four oh five seven five one seven meg.

Just point a dish anywhere up in the sky.
You can't miss it, no matter how hard you try.
In every direction the photons will fly
At fourteen and twenty point four oh five seven five one seven meg.

The H1 emissions were there all along,
Detected in 'Fifty One, passably strong
And now celebrated in story and song
At fourteen and twenty point four oh five seven five one seven meg.

The hydrogen clouds are all moving in space
And so their emissions don't stay in one place.
They Doppler shift at a respectable pace
Around fourteen and twenty point four oh five seven five one seven meg.

One thing about H1 that matters to me:
It gives us a clue where the signal might be
When hoping to communicate with ET -
Try fourteen and twenty point four oh five seven five one seven meg.

That is the one frequency you need to learn.
Commit it to heart; your diploma you'll earn.
I'll say it once more; your indulgence I beg:
It's fourteen and twenty point four oh five seven five one seven meg.



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