



# SearchLites

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The Quarterly Newsletter of The SETI League, Inc.

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## Is SETI News Harmful to Radioastronomy?

by Ignas Snellen, Professor of Astronomy  
Leiden University, Netherlands

How harmful is all the recent SETI (non-) news for astronomy?

We astronomers have always been very good in selling our stories, invoking giants, dwarfs, black holes, dark matter, dark energy, and a big bang to convey complex concepts which are so much larger than the human scale. It engages journalists, policy makers and politicians, and the general public, and helps to make them interested and excited in what we do.

There is, however, a fine line between using metaphors and simplifications to help explain the universe as we think it works, and spreading fairy stories and known falsehoods. Is the use of the latter increasing, and how damaging is this to our beloved research field?

Personally, I have already for a while been quite annoyed by some news stories, but my short write-up is triggered by a recent piece in a Dutch quality newspaper *De Volkskrant*, about the rise of fake news in astronomy, focusing on the reporting around the Oumuamua asteroid. Firstly, the news that it could possibly be a space ship and that it would be searched for signals from extraterrestrial intelligence, then the subsequent news that no such SETI-signals were yet found but that only a small part of frequency space was searched for, and finally followed by statements that the spaceship was possibly impaired anyway because the object is tumbling. Importantly, these news stories were not spread by some random new-media bloggers, but by ourselves as professional astronomers.

Earlier examples include an alien megastructure as a credible possibility for variability seen in Tabby's Star, the idea that fast radio bursts could be alien engine exhausts, leakage from planet-size transmitters (or other SETI related phenomena), and the bombastic announcements of new SETI searches every time a new temperate rocky exoplanet is found.

I have always had great respect for SETI scientists. They have been battling on for more than 50 years, showing great resilience in a mostly hostile scientific climate, and showing great restraint (their 1977 *Wow Signal* should be forgiven). A good example is how in 2016 Russian astronomers were very effective in contradicting reports that the RATAN-600 telescope had spotted a possible SETI signal (news that was in first instance spread by non-scientists).

Currently, most SETI-related news seems to be interfering with conventional scientific discoveries, stealing the limelight - without following basic rules of science. By definition, SETI signals cannot be explained by the general laws of physics - that is how we would identify them as such. Therefore, there is no place for alien civilizations in a scientific discussion on new astrophysical phenomena, in the same way as there is no place for divine intervention as a possible solution. One may view it as harmless fun, but I see parallels in athletes taking banned substances. It may lead to short-term fame and medals, but in the long run it harms the sport. Same for astronomy: we should be very careful not to be ridiculed. I really hope we can stop mentioning SETI for every unexplained phenomenon.

# Quantifying Earth's Electromagnetic Leakage

by Frank D. Drake

One of the justifications for observational SETI is that Earth has been radiating electromagnetic signals into space for the better part of a century, so other technological societies may be doing so as well. This is a story about quantifying Earth's electromagnetic leakage, a story which few people know for reasons which will become obvious.

Go on Google Earth to longitude 79.27 west, latitude 38.515 north. There you will see something quite amazing - a major radio observatory almost no one has ever heard of! There are some 13 fully steerable big dishes, the largest being about 30 meters, and a cluster of ten small dishes. This is the "Naval Communication Station, Sugar Grove, West Virginia" (where is the ocean?).

What is the history of this? It was built in the 1960's to exploit a discovery made by the Naval Research Lab, which was that the moon could be used as a high quality radio reflector. Not just for radar, but for clear voice communications. This motivated a truly major project to build, as quickly as possible, a 600-foot fully steerable radio telescope with capabilities at centimeter wavelengths. The idea was to eavesdrop on the communications channels of the Soviet Union, which would be possible using "moon bounce" whenever the moon was visible from Sugar Grove and the Soviet Union at the same time (which is not a lot of the day). This was happening at the height of the Cold War. A frantic construction project was started. Not only a big telescope was to be built, but a major power station to provide uninterrupted power -- the big dish was also a giant sail, and would require a great deal of power to steer properly in strong winds. The power station would need a dedicated natural gas supply line from Pennsylvania to guarantee reliable service. A small town would have to be built to house not only the necessarily large electronics staff, but also the huge number of linguists who would listen to all the intercepted channels, which might be in the hundreds at any time. Picture a bee hive of little rooms, all underground, protected from RFI by overhead imported charcoal and soil, with each room having a linguist with headphones on listening to conversations in far away Russia. It was there. I saw it.

A group of us from the NRAO were invited to visit the place after it had been under construction for about a

year. The things mentioned above, village and all, were already in place. The huge rotating base of the telescope, which was many stories high, was in place, and the towers to support the dish, each more than 300 feet high, were far along in construction. There were huge structural components on the ground everywhere. The whole thing seemed like something out of a science fiction movie. It had been adopted as the symbol to be used with the Centennial Birthday Celebrations of the State of West Virginia in 1961. There were countless coffee mugs and T-shirts with an artist's conception of the telescope on them and souvenirs of all kinds.

Then things went off the tracks, figuratively and in reality. The construction of the rotating base had been designed before the detailed engineering design of the dish had been complete. As the dish design became finalized, it was realized that the dish structure, to be sufficiently robust, would have to use heavier steel members than in the preliminary designs. The overall weight of the finished dish grew. In fact, it grew so much that the rotating base, as already built, was no longer strong enough to support the dish. Large parts of it had to be removed and replaced with sturdier steel. This would cost a lot, and would lead to a large delay in the date of completion. Would Congress go along with this? And then came the last straw, or rather giant piece of concrete falling on it. It was 1962, the fourth year of the space age. The US had enough experience to know that you could build satellites to be placed in low Earth orbit which could carry out the eavesdropping function, but for the whole Soviet Union and 24 hours a day. So much better than the big dish! The project was canceled! -- As quietly as is possible with a project which is 80 stories high. The government of West Virginia was devastated -- all those coffee cups and T-shirts wasted.

The Navy continued to complete the site as a radio observatory. Clearly there is a lot of activity of some kind going on there. If you look at the image on Google Earth, you can see the remnants of the circular foundations of the base of the 600-foot dish. A sort of astronomical Stonehenge. Once there were great structures, much like Stonehenge, on the foundations still visible in the soil. Much of the town is still there, just to the north of the site. It looks like a neat, company, town. Has the site been used to collect information via moon bounce, as originally intended? If so, there must be a huge collection of well-calibrated data on the radio signature of Earth as seen from interstellar distances. Maybe there is no need to design space missions to gather data about Earth's electromagnetic leakage. The data already exists somewhere in Sugar Grove.

**Guest Editorial:**

**On Ursula Le Guin**

**by Paul Gilster, from *Centauri Dreams***

**(used by permission)**

Thinking about Ursula Le Guin takes me to a single place. It is a snow-driven landscape, a glaciated world of constant winter called Gethen, whose name means ‘winter’ in the language of its people. I was reading *The Left Hand of Darkness* while snow pelted down outside one afternoon in upstate New York, waiting for my wife to get back from her teaching job, nursing a cup of tea and finding my mental location fusing with Le Guin’s fascinating world.

For *The Left Hand of Darkness* was a spectacular introduction to Le Guin. I had seen her name and even had, somewhere in the stacks, a copy of her first novel, *Rocannon’s World* (1966), part of an Ace Double that I never got around to reading. *The Left Hand of Darkness* came out in 1969 but it was in the late 70’s that I read it. I had been through “The Word for World is Forest” when reading *Again, Dangerous Visions* (1972), one of Harlan Ellison’s anthologies, and although it won a Hugo Award in 1973, I hadn’t found it as much compelling as didactic and all too linked to its era.

I just wasn’t, in other words, prepared for *The Left Hand of Darkness*, which explores a world in which the inhabitants have no fixed sex. I had read Samuel Delany’s *Triton* (1976), which deals in some of the same themes, without enthusiasm — I would learn later that Delany saw connections between the novel and Le Guin’s later novel *The Dispossessed* (1974) — although positing a world where people can change appearance and gender at will provided Delany with vast terrain for exploration.

What made *The Left Hand of Darkness* stand out for me was simply the quality of its prose. Le Guin wrote the novel without sacrificing narrative flow, mining her subject with the gaze of a person who had been raised by two anthropologists (her mother’s book *Ishi in Two Worlds* (1960) had been widely acclaimed for its look at Californian Indian culture), but she was much more than a chronicler of scientific detail. A dispassionate eye couples in

the novel with an explorer’s growing wonderment at place, at people. And the language:

*Even as I think this the world’s sun dims between clouds ragathering, and soon a flaw of rain runs sparse and hard upriver, spattering the crowds on the Embankment, darkening the sky. As the king comes down the gangplank the light breaks through a last time, and his white figure and the great arch stand out a moment vivid and splendid against the storm-darkened south. The clouds close. A cold wind comes tearing up Port-and-Palace Street, the river goes gray, the trees on the Embankment shudder. The parade is over. Half an hour later it is snowing.*

I can’t speak about *The Dispossessed* (1974) because I’ve never read it. In fact, there is a great deal of Le Guin I haven’t read. But when the writer died last month, I was reminded of my frequent intention of getting into her essays. A new volume called *No Time to Spare: Thinking About What Matters* had gone on my Amazon wishlist as soon as I saw it in 2017, but I also wanted to cycle back around to her *Earthsea* series.

As for *The Left Hand of Darkness*, though, what sticks with me as well as the evocation of place and the vivid sense of snow is the idea behind its civilization. The Hainish universe, beginning with *Rocannon’s World*, assumes that humans evolved not on Earth but on a planet some 140 light years away called Hain. Because its inhabitants colonized many stellar systems, the possibility was strong that any exploratory vessels from Earth would encounter populations that had been seeded as we had on their worlds. The effort becomes one of re-creating a lost interstellar civilization, using starships traveling close to the speed of light.

I’m told that the ansible was introduced in *Rocannon’s World* as a way of communicating instantaneously, so a civilization otherwise bound by lightspeed could manage its affairs. Many authors have used an ansible in their work since (and I also think of Dave Langford’s science fiction news and tip-zine of the same name). Le Guin’s galactic civilization becomes known as the Ekumen by the time of *The Left Hand of Darkness*, comprising fully 83 worlds. I like the fact that Le Guin contrasted science fiction, which she insisted could be serious literature, with some of the creative-writing-

workshop fiction that is all too easily churned out today:

“The thing to remember, however exotic or futuristic or alien the mirror seems, is that you are in fact looking at your world and yourself. Serious science fiction is just as much about the real world and human beings as realistic novels are. (Sometimes more so, I think when faced with yet another dreary story about a dysfunctional upper middle class East Coast urban family.) After all, the imagination can only take apart reality and recombine it. We aren’t God, our word isn’t the world. But our minds can learn a lot about the world by playing with it, and the imagination finds an infinite playing field in fiction.”

(Interview, Electric Lit, August 7, 2014)

*The Left Hand of Darkness* took both Hugo and Nebula awards and became a fixture wherever science fiction was taught in the academy, surely the first SF novel to do so. No less a figure than Harold Bloom described the book in his monumental *The Western Canon*. I may not be the only writer who sees Le Guin invariably through its lens.

*The New York Times* has a fine obituary for Le Guin, as does the *Washington Post*, but if you want to get to know her views up close, read John Wray’s interview in the *Paris Review*. What a fine, spirited person! Here Wray, who is no slouch at working science fictional elements into his own novels, asks her about the genre:

*I don’t think science fiction is a very good name for it, but it’s the name that we’ve got. It is different from other kinds of writing, I suppose, so it deserves a name of its own. But where I can get prickly and combative is if I’m just called a sci-fi writer. I’m not. I’m a novelist and poet. Don’t shove me into your damn pigeonhole, where I don’t fit, because I’m all over. My tentacles are coming out of the pigeonhole in all directions.*

**Disclaimer:** The opinions expressed in editorials are those of the individual authors, and do not necessarily reflect the position of The SETI League, Inc., its Trustees, officers, Advisory Board, members, donors, or commercial sponsors.



## 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](http://www.setileague.org)) under *Event Horizon*, or email to us at [info@setileague.org](mailto:info@setileague.org), to obtain further details. Members are also encouraged to send in information about upcoming events of which we may be unaware.

**April 22, 2018, 1300 EDT:** Twenty-Fourth SETI League *Annual Membership Meeting*, Little Ferry, NJ.

**May 25 - 28, 2018:** *Balticon 52* Baltimore Science Fiction society Annual Convention, Baltimore MD.

**July 22 - 25, 2018:** *Society of Amateur Radio Astronomers Conference*, NRAO Green Bank, WV.

**August 16 - 20, 2018:** *76th World Science Fiction Convention*, San Jose CA.

**October 1 - 5, 2018:** *69th International Astronautical Congress*, Bremen, Germany

**November 16 - 18, 2018:** *Philcon*, Cherry Hill, NJ.

**April 28, 2019, 1300 EDT:** Twenty-Fifth SETI League *Annual Membership Meeting*, Little Ferry, NJ.

**May 24 - 27, 2019:** *Balticon 53* Baltimore Science Fiction society Annual Convention, Baltimore MD.

**August 15 - 19, 2019:** *77th World Science Fiction Convention*, Dublin, Ireland

**October 21 - 25, 2019:** *70th International Astronautical Congress*, Washington DC



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## Announcement of the Twenty-Fourth Annual Membership Meeting Sunday, 22 April 2018, Little Ferry NJ

In accordance with Article IV, Section 1 of our duly approved Bylaws, the Trustees of The SETI League, Inc. hereby schedule our Twenty-first Annual Membership Meeting for 1 PM Eastern time on Sunday, April 22, 2018, at the conference room of Eventide, Inc., One Alsan Way, Little Ferry NJ 07643. This office is located adjacent to The SETI League office, one block north of Route 46 and one mile east of the Teterboro Airport, accessed off of Route 46 via Liberty Street to Harding Avenue to Alsan Way. Here is a map, courtesy of MapQuest.



We recommend that out-of-town members and guests flying in commercially use the Newark International Airport (EWR), which is about twenty minutes South of our office. There is a wide variety of hotels available at the Newark Airport. A rental car is recommended. From Newark, drive North on the New Jersey Turnpike to US Route 46 Westbound, cross over the Hackensack River, and two long blocks after the traffic circle, turn right onto Liberty Street.

Our members and guests using General Aviation are invited to use the Teterboro Airport (there *are* landing fees and a security fee). Of the half-dozen Fixed Base Operators offering transient parking, we recommend Atlantic Aviation (ask Ground Control for parking in the Atlantic Midfield). They should be able to assist you with ground transportation, and will waive the ramp fee if you purchase fuel. Please coordinate your schedules and needs in advance through our secretary via email to [heather\\_at\\_setileague\\_dot\\_org](mailto:heather_at_setileague_dot_org).

As attendance by one percent of the League's membership constitutes a quorum, all members in good standing are encouraged to attend. The preliminary agenda for this meeting, per Bylaws Article XII, appears below.

Per Article IV, Section 3 our Bylaws, written or electronic notice of this Meeting is being provided to all members in good standing, not less than ten days nor more than ninety days prior to the meeting date. Members are encouraged to submit additional Old Business and New Business items for inclusion in the Agenda. Please email your agenda items to [paul\\_at\\_setileague\\_dot\\_org](mailto:paul_at_setileague_dot_org), not later than April 1, 2018. For planning purposes, we would appreciate it if members would also RSVP to our secretary, [heather\\_at\\_setileague\\_dot\\_org](mailto:heather_at_setileague_dot_org), if planning to attend.

The annual Board of Trustees Meeting required per Bylaws Article V, Section 3 will immediately follow the Membership Meeting. All SETI League members in good standing are welcome to attend.

### Preliminary Agenda

- Call to Order
- Minutes of 2017 Membership Meeting
- Financial Report
- Committee Reports
- Old Business
- New Business
- Good and Welfare
- Adjournment



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SETI League memberships are issued for the *Calendar Year*. Please check the expiration date indicated on your mailing label. If it reads December 2017 or earlier, you have already expired, and *must* renew your SETI League membership **now!** Please fill out and return this page along with your payment.

**Please renew my membership in this category:**

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Annual memberships are issued for the calendar year. Those processed in January through April expire on 31 December of that year. Those processed in September through December expire on 31 December of the *following* year. Those members joining in May through August should remit half the annual dues indicated, and will expire on 31 December of the same year.

**Order Your Membership Premiums:**

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2006, 2007, 2008, 2009 (specify)	\$20	\$27
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<i>The Listeners</i> by James Gunn	\$15	\$21
<i>Sing a Song of SETI</i> (Songbook)	\$10	\$13
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T-shirts, specify M, L, or XL	\$15	\$22
SETI Nerd Gift Set (one each Mouse Pad, Pocket Protector, <i>Project Cyclops</i> and <i>Tech Manual</i> ) at 20% Savings to <u>Members Only</u> :	\$30	\$45

**\*Includes postage to (u/c) US/Canada, or (o) other locations**  
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