



SearchLites

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Final Issue

The Quarterly Newsletter of The SETI League, Inc.

SETI League Winding Down

by H. Paul Shuch, Executive Director Emeritus

For three decades, the nonprofit, membership supported SETI League, Inc. was proud to emerge as a preeminent exemplar of participatory science. Founded in 1994, we dedicated our efforts to answering the fundamental question which has haunted humankind since first we realized that the points of light in the night sky are other suns: *are we alone?* Largely using radio telescopes and optical telescopes, SETI scientists have long sought to determine whether humankind is the sole sentient species in the universe. Since Congress terminated NASA's SETI funding in 1993, The SETI League and other scientific groups have privatized this exciting research. But all good things must come to an end.

Since its inception, The SETI League maintained an office in New Jersey USA, and supported a cadre of volunteer regional coordinators all over the world. Now most of the founding members of The SETI League are aging, and all too many are deceased. Recently our founding President retired and relocated to Arizona, and our Executive Director Emeritus to California. Just a few months ago we lost our beloved Secretary/Treasurer, who ran the New Jersey office single-handedly. Lacking the staff or resources to continue serving our membership, our surviving Trustees have made the difficult decision to terminate operations at the end of the year.

Although our membership-supported nonprofit organization is winding down, many of our 1500 members in five dozen countries on all seven continents are continuing their independent research. You can read about their efforts on our extensive website, which we hope to maintain for educational and historical purposes. We are in the process of donating our remaining equipment and limited financial resources to other like-minded nonprofit organizations. It is our hope that our most active members will continue to attend and contribute to scientific conferences around the world, though as individuals rather than members of any formal organization. And, though we have yet to uncover definitive evidence of other technological civilizations in the cosmos, we remain confident that the holy grail of SETI science will not forever remain beyond humanity's grasp. We will continue to encourage SETI research worldwide, even as we continue to ask: *are we alone?*

The SETI League - A Personal Recollection by Richard Factor, founder and president

We are Discontinuing Operations at the End of 2024

"Discontinuing operations" isn't entirely accurate, since operations were discontinued on our behalf by the loss of our Secretary, Heather Wood, earlier this year. What we are truly discontinuing is the SETI League itself. We are surrendering our non-profit corporate charter, donating our assets to other SETI endeavors, and our remaining staff will be undertaking different pursuits and activities. Just as Carroll's Cheshire Cat left behind only a grin, the remainder of the SETI League will be its December 2024 Web Site final update.

Why?

The inexorable passage of Time. I've made it clear, at least to the extent I have been able to wield English, how much I hate The System. It got Heather, and it's after Paul Shuch, our Executive Director Emeritus and after me, our President. We were all within a year the same age when this started in 1994, and, with one exception, remain thus today. Despite Paul's and my great good fortune in remaining extant, SETI does nothing if not give one perspective. If we did not go out gracefully, out eventually we would have gone with a push. We're denying The System at least that degree of volition. But I'm pretty sure I'll have Time to finish this recollection and perhaps a bit more as well. What do I remember?

Our Founding

An unsung heroine of the SETI League is one Victoria A. Navarra. When NASA and the United States Congress disengaged from SETI, I decided to pick up the antenna, as it were. But before singing The SETI League Hymn, we had to exist. One doesn't start an organization, collect members and their dues, and undertake organized activity without government involvement. Vicki was the only person I knew (or am ever likely to know) to have the patience and legal knowledge to navigate the byways of non-profit organization. She did it. Paul and I, without Vicki or Heather, hope to navigate our disorganization, a much simpler process, while retaining what's left of our sanity. I should also mention and thank Orville Greene, my late business partner and patent attorney, for whom Vicki was legal secretary and who generously provided initial funding for the league.

Our Early Years

The NASA Project Cyclops report came to me from the dissolution of an unlamented library at which I exercised my pack-rat skills. I believe it was in the late 1980s

when I read it and marveled at the genuine possibility of finding extraterrestrials. When NASA was forced to abandon SETI and we started our own SETI League, I realized that Cyclops would be an invaluable introduction to the field for our members. Having no way at the time to obtain copies over the internet, we located a pristine copy with the help of the SETI Institute and, along with them, reprinted the report and added our own preface. The new edition included introductions by Barney Oliver, Paul Shuch, and me.

Our Executive Director, Paul Shuch

I knew Dr. Paul Shuch from our mutual interests, both business and personal, in aviation and ham radio. It occurred to me that he might have an interest in SETI as well, and was I ever right! We had a nice chat and I recommended that he give up his full professorship to "work" as the Executive Director of the SETI League. He took me up on it, served fulltime for over a decade, and was promoted to emeritus status when our budget and our ages dictated that necessity. He retains that position to this day, albeit not for much longer. Despite my nominal presidentship, Paul ran the organization, fulfilled the legal requirements, provided almost all of our technical proficiency, and even wrote both of our official songbooks. My personal thanks to Paul for making the SETI League the organization it has been. Without his efforts it is unlikely to have been much more than a web site comprising my own silly theories and blandishments for others to go forth and Search.

Jill Tarter

What is my favorite memory from the early years? Surely it must be the day when the doyenne of SETI, Dr. Jill Tarter paid us a visit in New York City. Jill and I possibly attended the same astronomy class in college. She turned her interest in the subject into a doctorate and worldwide acclaim. Beyond the astronomy class, we shared another attribute: We both consume food. Over a pastrami sandwich at the now-defunct Carnegie Deli we discussed some of the methods and pitfalls of building large antennas and receivers intended to operate in mildly forbidding terrain outdoors. At one point I delivered myself of the opinion that running cryogenic fluids through long and complex piping might not be the best idea. I then realized that I was giving stupid advice to one of the world's great experts on the subject, admitted to same, and shut up. Which did not prevent either of us from finishing our pastrami sandwich.

Contact!

The movie Contact with Jodi Foster playing the part of Jill Tarter and the Eventide DSP4000 Harmonizer

playing the part of the ET signal receiver gave the SETI League an enormous boost in membership. At our peak, right after the movie, we had almost 1000 paid members. Alas, almost none of them really understood what they were signing up for. Only a handful renewed, but for that brief period of peak-SETI we got a lot of publicity and felt interest was strong enough to have our own conventions!

Our Moonbounce Beacon

One of the few genuine contributions I feel I made to the SETI enterprise was the creation of the W2ETI Moonbounce Beacon. A big problem with looking for signals from space aliens is knowing when you've found one. For example, the reliable and predictable signal from the first-discovered pulsar gave rise to the guess that it was of deliberate and intelligent origin. By creating such a signal that anyone with the right equipment could discover, and which was clearly artificial (unless the stars know Morse Code), a searcher could verify that his equipment was working correctly.

And it was fun for me! I'm a hardware guy with a penchant for eBay, and had room for an antenna. The system is off the air and will remain so, having been shut down about 15 years ago. But it was valuable and received reception reports from individuals and even from the Arecibo radiotelescope facility when it was still extant. It would be fairly easy for another organization or individual to resurrect a more sophisticated version of the beacon. Perhaps it's being scoped right now!

Our SETICons

The interest in SETI after Contact was so great and our membership so augmented that we felt it would be possible to have a "convention" of our members and others to discuss ideas, findings, and research implementation, with hardware, software, and theoretical talks. The late Al Katz (K2UYH) graciously volunteered the facilities of the Technical College of New Jersey at which he was a professor as a meeting venue, and Paul and Heather put enormous effort into organizing these events. We even had volumes of Proceedings printed. We did this for several years but circumstances and dwindling attendance intervened. Our 2001 - 2004 SETICons were quite the highlight of our 30-year tenure.

Our Success/Failure

The SETI League was founded on the premise that life existed elsewhere in the universe and that it would be detectable by scientific means, most likely by the reception of communication by electromagnetic means.

Recognizing that ET might not think as "we" do, and especially not as orthodox scientists do, Paul and I felt that individuals with disparate theories and resources might have as good a shot as the professionals with their kilobucks (and eventually megabucks). We were successful in creating a somewhat coordinated group of such individuals. With only one false alarm, nobody made any claims of detection or reception.

Were we successful?

In the limited sense of encouraging the group to search for signals, yes. In another sense we were as well: As we like to put it, we were just as successful as NASA and other groups with larger and smaller budgets. Unfortunately, as of this writing we and they were all failures. No space aliens have been discovered by any means at all.

Are we optimistic? Not so much for myself individually, but much more so for the SETI enterprise. At the time of our founding, the "little green men" hypothesis was in disrepute, in the Senate and elsewhere. At present, almost nobody doubts that there is intelligent life in the universe, perhaps even on earth!

And, of course, Heather

Heather embodied the genius of Organization. Without her, we would have had to be bureaucrats instead of, arguably, as Paul puts it, SETIzens. Thank you in absentia, Arielle Heather Wood.

Too Many Others To Mention

No point in trying! Over the three decade history of the SETI League, we've had thousands of members, a number of advisors, hundreds of contributors, all of their time and many of modest to significant sums. The few current members who will read this personal note will hopefully forgive us for getting old and shutting down the organization. Paul and I remain very interested in SETI, the League is donating its remaining funds to SETI activities, and I at this very moment have LASER SETI receivers on my roof. We're still hopeful and unbowed. We hope you are, too.

Administrivia

The SETI League server was down for several days due to a combination of hardware failure and holiday madness. The 16-year-old server has now been replaced with a much newer and more power-efficient unit. It is our intention to keep it operating indefinitely, although the SETI web site isn't expected to be updated beyond the end of 2024.

Executive Director's Argus Station Decommissioned by H. Paul Shuch

On 21 April 1996, SETI League members gathered in New Jersey to launch a new Search for Extra-Terrestrial Intelligence. We sought to determine whether humankind is alone, the sole sentient species in the vast cosmos. The late NASA SETI program, terminated by Congress two and a half years prior, had involved a two-pronged approach to answering that question. A targeted search of nearby Suns was designed to offer prompt results -- if we happen to guess right as to what constitutes a suitable star. But just in case we don't, a methodical survey of the entire sky was also begun.

When NASA SETI funding ended, our SETI Institute colleagues in California very quickly resurrected the targeted search component, under the Project Phoenix banner. Shortly after, The SETI League launched our own Project Argus, as a continuation of the sky survey. We were attempting something which NASA had never contemplated: real-time, all-sky coverage.

The world's giant radio telescopes, the type which NASA used, can only see about a millionth of the sky at a time. Which means if you have one turned on, tuned to exactly the right frequency, at the very instant when The Call comes in, there's still a 99.9999% chance you'll be pointed the wrong way! One possible solution is to build a million such instruments, and cover the entire sky, all at once. At many millions of dollars apiece, we'd very quickly exceed the Gross Planetary Product. But small radio telescopes, such as our members built and used, can see 200 times as much sky as more traditional research instruments. We reasoned that only five thousand of these systems, each priced at just a few thousand dollars, could be coordinated to see in all directions at once.

It's true that these small telescopes had limited sensitivity. Thus we could only hope to capture those highly intermittent, extremely powerful radio emissions which we hypothesize might be emanating from relatively nearby technological civilizations. But our microwave and computer technologies had been evolving at a dizzying pace. Within just a few years, we anticipated technological advances which would allow instruments like ours to hear all the way to the edge of the Galaxy. The SETI League existed to promote just such advances. Thus we deem our mission successful, even though we never heard a peep from the stars.

During the last half-century, SETI has emerged out of the realm of science fiction, and into the scientific mainstream. Every month we read about the discovery of yet another planetary system in space. We are beginning to learn about how life might have developed on other worlds. And we have completed the Copernican Revolution, finally realizing that we are not the center of all creation. Yet SETI programs continue to yield a null result. We are not discouraged. Not only have we not yet scratched the surface, we haven't even felt the itch.

We launched our search on Earth Day, flying the Flag of Earth, because SETI is an enterprise which belongs not just to one country, government or organization, but rather to all humankind. Like Argus, the guard-beast of Greek mythology who had a hundred eyes, we sought to see in all directions at once, that we might capture those photons from distant worlds which may well be falling on our heads even as we speak.

Nearly 28 years after we launched Project Argus, it (and our SETI League) are winding down. This decision was driven by economic reality, diminishing membership, the retirement of our President and Executive Director, and the recent untimely death of our Secretary/Treasurer. In preparation for my own retirement and relocation, two months ago I dismantled and recycled my own personal Project Argus station (FN11lh, identified by its Maidenhead Grid Designator, widely used by radio amateurs to indicate their location). Though our search has reached its end, we are still hopeful that others will soon find the answer to that fundamental question which has haunted humankind since first we realized that the points of light in the night sky are other suns: Are We Alone?



Participatory SETI in Canada

By Scott D. Carter, Special Projects Coordinator

Seven years have passed since I dragged home an old C-Band satellite dish and began building my back-yard SETI station. It continues to be an ongoing project, as I am constantly trying to improve its capabilities. I enjoy tweaking my radio telescope design to have it perform automated tasks and I try to add new features such as remote operation. It has been a thoroughly satisfying experience, and one that I am not quite ready to give up!

I must admit that there are times when I doubt the future of my SETI station. Personal commitments often pull me off-task and radio telescopes can be an expensive investment. However, my continued interest in building a community of amateur SETI enthusiasts in Canada, and the possibility of one day receiving a candidate signal keep me focused.

The question that is currently running through my mind is not so much “Are WE alone?”, but rather “Am I alone?”. I sincerely hope that others will join me to continue what SETI League has begun and help share this fascinating hobby. Canada needs a new generation of station-builders and supporters if participatory SETI is going to persist into the future. If readers would like to participate or simply help cheer us on, I have created a Facebook group named “SETI Group – Canada”. You don’t need to be in Canada to participate in the group so please consider joining!

While Project Argus has enjoyed much participation in the nineties, the number of stations has declined over the years. Canada needs a catalyst to get amateur SETI stations growing in numbers again. Many of you will be disappointed that the SETI League’s Project Argus will be winding down at the end of 2024, but other projects could only dream of the longevity that Project Argus has enjoyed. I certainly have mixed emotions about closing this chapter of SETI League history, but with your help the search will continue!

With the introduction of high-performance computers and Software Defined Radio (SDR), the technology landscape has changed. While the advancement of computer Operating Systems has made finding signal processing software for SETI difficult, a new open-source initiative has been created for the development of next-generation SETI software. Computer programmers from Canada, the United States of America and Japan have offered to assist with its development. This software is still in its infancy, but hopefully it will gain momentum in 2025. The introduction of a modern (and automated) software suite is imperative to the success of future amateur SETI projects.

In closing, I would like to personally thank those who have helped me over the years including SETI League’s Dr. H. Paul Shuch, Heather Wood and Richard Factor. Your assistance and guidance have been greatly appreciated! I would also like to thank everyone who has supported SETI League, and its mission. It is my hope that participatory SETI in Canada will continue to have a bright future with your help.

You may contact me at seti@22u.ca for further information, or to receive an invite to our Discord server. You may also visit my website at <https://22u.ca/seti/> for up-to-date information on the progress of my SETI station.



Editorial

Why First Contact Could Be With Artificial Life By Sir Martin Rees, UK Astronomer Royal

We're all aware that our natural world is the outcome of about 4 billion years of Darwinian evolution. Most people think of humans as the culmination—the top of the tree, but no astronomer can believe that. The Sun's not even halfway through its life; the cosmos will go on for far longer, maybe forever. Humans may not even be the half-way stage in the emergence of ever more wonderful complexity in the cosmos.

There are chemical and metabolic limits to the size and processing power of flesh and blood brains. Maybe we're close to these already. But no such limits constrain electronic computers. We are perhaps near the end of Darwinian evolution, but technological evolution of intelligent beings is only just beginning.

Their evolution will be ultra-rapid compared to the timescales of the Darwinian selection that led to humanity's emergence – but even more billions of years lie ahead. So the outcomes of future technological evolution could surpass humans by as much as we (intellectually) surpass slime mould.

We humans thrive on a planetary surface; but if posthumans make the transition to fully inorganic intelligences, they won't need an atmosphere. And they may prefer zero-g, especially for constructing massive artifacts. So it's in deep space – not on Earth, nor even on Mars -- that non-biological 'brains' may develop powers that humans can't even imagine.

Thanks to Prof [Michel] Mayor and his successors, we know that there are millions of earth-like planets spread through the Galaxy.

Does this aggravate the Fermi paradox? Not necessarily. Some who address this imagine that alien civilisations will be expansionist and aggressive. But even though Darwinian selection has favoured intelligence and aggression, post-human evolution, occurring via 'secular intelligent design', need not be aggressive or expansionist. Needing neither gravity nor an atmosphere they would not be on planets. A 'flesh and blood' civilization may be

detectable for a few thousand years, but its electronic progeny and artifacts could survive for far longer.

The history of human technological civilization is measured in millennia (at most) – and it may be only one or two more centuries before humans are overtaken or transcended by inorganic intelligence, which will then persist, continuing to evolve on a faster-than-Darwinian timescale, for billions of years. 'Organic' human-level intelligence is, generically, just a brief interlude before the machines take over.

Were we to detect ET, it would be far more likely to be electronic where the dominant creatures aren't flesh and blood -- and aren't on planets.

Conjectures about advanced intelligence are far more shaky than those about simple life. If it's evolved on other worlds, with a head-start, I'd conjecture three things about the entities that SETI searches could reveal.

1. They will not be 'organic' or biological.
2. They won't remain on the planet where their biological precursors lived.
3. But we won't be able to fathom their intentions. Maybe it's the science fiction writers who can teach us most.

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

The SETI League's Conference Calendar

SETI enthusiasts are apprised of the following meetings and conferences at which SETI-related information will be presented.

April 21, 2025: SETI League Virtual Annual Meeting - *Cancelled* due to termination of SETI League activities.

August 18 - 21, 2025: Third Penn State SETI Symposium, State College, PA.

September 29 - October 3, 2025: 76th International Astronautical Congress, Sydney, Australia.

October 2026 (dates to be announced): 77th International Astronautical Congress, Antalya, Turkey.