



SearchLites

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The Quarterly Newsletter of The SETI League, Inc.

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Their Fears are Unfounded

by **Stephane Dumas**

Is the risk of interstellar transmissions from Earth justifiable? Several distinguished physicists think not. Stephen Hawking has warned that we could face a Columbus-coming-to-America scenario, with Earth playing the role of the Native Americans. Michio Kaku has pointed out that Cortes conquered the entire Aztec empire in less than two years, with technology that was only perhaps 1,000 years more advanced. If aliens showed up here, the technological disparity might well be tens of times greater in magnitude.

I for one believe this argument is flawed, for the following reasons:

1. The Incas and Aztecs did little to oppose the Spanish invasion because they believed that the Conquistadors were godlike people. Had they resisted, the Spanish would likely not have succeed. The Spanish had guns, but the Inca and Aztec peoples had the huge number of soldiers.
2. In some cases, the Spanish used local mercenaries to wage war.
3. A lot of Spanish died because of sickness.
4. The Conquistadors came to America of their own accord. They were explorers. They were not invited by a smoke-signal message sent out by the Incas. So, the parallel with Messaging to ExtraTerrestrial Intelligence (METI) is not valid.

Furthermore, there are examples in history where a more advanced civilisation fell before a more primitive one (ie. the defeat of Rome by the Goths).

From a point of view of physics, it is extremely difficult to journey between stars. The energy requirement is enormous. Those familiar with the Daedalus project will recall that the starship's initial mass is 150,000 tons to send a 500 ton probe to Barnard's Star, and the trip would take 40 years. I'm not too concerned about interstellar empires. Conquering other worlds is a huge expense of resources. A civilisation trying to be stable for centuries cannot afford this kind of luxury.

I think Kaku and Hawking can rest easy. Even if we transmit, the extraterrestrials are not coming here to conquer us.



Guest Editorial:

Alien Probes For Real?

by Seth Shostak

Senior Astronomer, SETI Institute

From *Huffington Post*, used by permission.

According to a Roper poll conducted two decades ago, nearly four million Americans suspect they've been abducted by space aliens. The experience is not always pleasant, as the aliens refuse to subscribe to the Geneva Conventions. Their victims are frequently laid out on tables and treated to unauthorized and unsavory medical procedures.

It sounds like there's a lot of alien probing going on, and any comprehensive health plan should probably cover it.

But there's a different kind of alien probe to consider, and it's of a type that might actually exist. Namely, space probes -- hi-tech hardware -- that have been placed somewhere in our solar system by extraterrestrial beings keen to monitor our planet. Canadian astronomer Alan Tough has frequently proposed this idea as the type of project that might be tempting to a truly advanced society. After all, if they long ago detected the oxygen in Earth's atmosphere, they might conclude that our world -- clearly carpeted with life -- is worth watching.

Now two post-graduate students at Penn State have published a paper considering whether we'd even notice a spy in the sky, observing Earth from orbit and reporting back to someone (or something) many light-years away.

Obviously, if the probe were large enough -- say tens of miles in size -- we would notice. That's a hefty comparable to some of the smaller moons of Jupiter, and we'd have found it by now. But it's safe to assume that any aliens able to sequester a probe in our solar system could cram equipment such as cameras, radio receivers, and spectroscopes into a far smaller package. Our own Pioneer and Voyager probes are roughly the size (and vintage) of a Volkswagen Beetle. Yet even with this modest bulk, they've collected a lavish amount of useful information and sent it back to their builders.

So a practical alien probe might fit in your living room. And at that scale, according to the Penn State postdocs, Jacob Haqq-Misra and Ravi Kumar Kopparapu, it could easily remain cryptic.

This shouldn't surprise you. Imagine the solar system as a football stadium, with the Sun on the 50-yard line, and Neptune (the farthest planet, as determined by astronomical vote) in the last row of seats in the end zone. At this scale the Earth is no larger than a pencil

point, but a space probe as big as a bus would be the size of an atom! There's simply no hope of finding something that small with our current telescopes unless the probe is outfitted with a noisy radio transmitter (aimed our way) or a set of vulgar, flashing lights.

But maybe the aliens have deployed their instruments much closer, where they would be easier to discover. Perhaps something aesthetically austere, like a slab monolith. If they've placed hardware like that on the moon, we could easily have overlooked it until now. However, as the Penn State authors point out, NASA's Lunar Reconnaissance Orbiter will soon have charted everything larger than a suitcase on the Moon's surface. Eventually, you can expect similarly detailed mapping of Mars. If there are monoliths sticking out of the dirt, we should see them.

However, a probe needn't be on the surface of any world. In fact, it would work better in orbit, with no worries about the long-term effects of weather (on worlds that have it) and with continuous access to sunlight for power.

Alas, and as noted, it's probably hopeless -- at least in the foreseeable future -- to do a thorough reconnaissance of our solar system. Nonetheless, there are certain places, such as the Lagrange points between the Earth and Moon, where a detailed search for not-made-on-Earth hardware could be undertaken. The Lagrange points are five positions in space -- all relatively nearby -- where all the gravitational and centrifugal forces sum to zero. While most are unstable, Lagrange points 4 and 5 are OK for long-term parking. They're prime locations for probes of our planet.

Some examinations of Lagrange 4 and 5 in the Earth-Moon system have already been made, but these experiments weren't sensitive enough to find anything smaller than your average three-bedroom home. A concerted effort could do better. And frankly, it sounds like an interesting thing to do.

Bottom line? There's no evidence we're being watched, but hidden surveillance can't be ruled out either. You should be familiar with this situation: It's like shopping at your local convenience store.



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.

In Memoriam:

Remembering Allen Tough

By H. Paul Shuch

Executive Director Emeritus

One of the most creative voices in the SETI field has been silenced. Prof. Allen Tough died of pneumonia on 27 April 2012, at the age of 76. With his passing, not only has science lost a brilliant mind; I have lost a dear friend.

For more than four decades, Allen Tough, Ph.D., was globally recognized as a pioneering scholar in adult learning, self-directed growth, and personal change. His seminal contributions to the field date back to the 1960s, and his research illuminated adults' successful efforts to learn and change. More than 90 major studies in eleven countries were based on Tough's early work.

Tough's inquiry contributed to an expansion of the dialogue on adult learning to include self-directed learning. He was instrumental in catalyzing movement from research focused primarily on who participates in organized adult education, to one which embraces the entire range of intentional adult learning.

Allen Tough wrote seven books and numerous articles and papers over the span of his career. His book The Adult's Learning Projects was chosen as one of the ten classical books in adult education. He was named "one of six most often used authors" in a survey of the Adult Education Association in 1978. Allen received The Malcolm Knowles Memorial Award for significant lifelong contribution to the field of self-directed learning in 2006. Later the same year, he was inducted into the International Adult and Continuing Education Hall of Fame.

In addition to his studies on the adult learner, Tough was an active researcher in the fields of futures studies and the scientific search for extraterrestrial intelligence (SETI). His book Crucial Questions About the Future was translated into Spanish and Chinese. He coordinated the World Future Society's Web forum on future generations, and was recognized as a Fellow of the World Futures Studies Federation, the International Academy of Astronautics, and the British Interplanetary Society.

In 1997, after 33 years as a faculty member at the University of Toronto, Allen Tough decided to retire early, that he might devote the balance of his time and energy to his research interests. In the SETI field, Allen founded the internet-based Invitation to ETI initiative in 1996. This project ultimately grew to a worldwide network of 100 scientists, futurists, artists and thinkers, whose members continue to contemplate interstellar contact.

Allen was a SETI League Charter Member, an active member of the SETI Permanent Study Group of the International Academy of Astronautics, established and underwrote the Billingham Cutting Edge Lectures presented at the annual International Astronautical Congress, edited the online academic journal *Contact in Context*, initiated that journal's *Best Ideas Awards* (one of which I was honored to receive), was founding chair of the SETI League's Strategic Planning Committee, and served as a SETI League volunteer Regional Coordinator. The SETI League honored Allen Tough in 2003 with its Orville Greene Service Award.

Since 2000, when he began exhibiting symptoms of Multiple System Atrophy, a degenerative neurological disorder initially misdiagnosed as Parkinson's Disease, Allen continued to make significant intellectual contributions to his three chosen fields of research: adult learning, futures studies, and the Search for ExtraTerrestrial Intelligence. Those contributions will be sorely missed by researchers in all three fields. During the last few days of his life, despite having lost the ability to communicate verbally, Allen was actively involved in the analysis of a still unverified SETI candidate detection.

The SETI League extends its profound sympathies to Allen's wife, Cathy Rand, his daughter Susan, and his son Paul.

Allen's sage advice and warm friendship have had a profound influence on my personal and professional lives. For the rest of my days, I shall continue to feel his hand on my shoulder, gently guiding me.



Allen Tough and his wife, Cathy Rand, in May 2006, during his induction into the International Adult and Continuing Education Hall of Fame in Dallas, TX.

Ralph Brockett photo, used by permission

Book Review:

The Elusive Wow

by Robert H. Gray

Palmer Square Press, December 2011

ISBN 978-0-9839584-4-4, hardcover, 256 pages, \$29.95

Reviewed by H. Paul Shuch

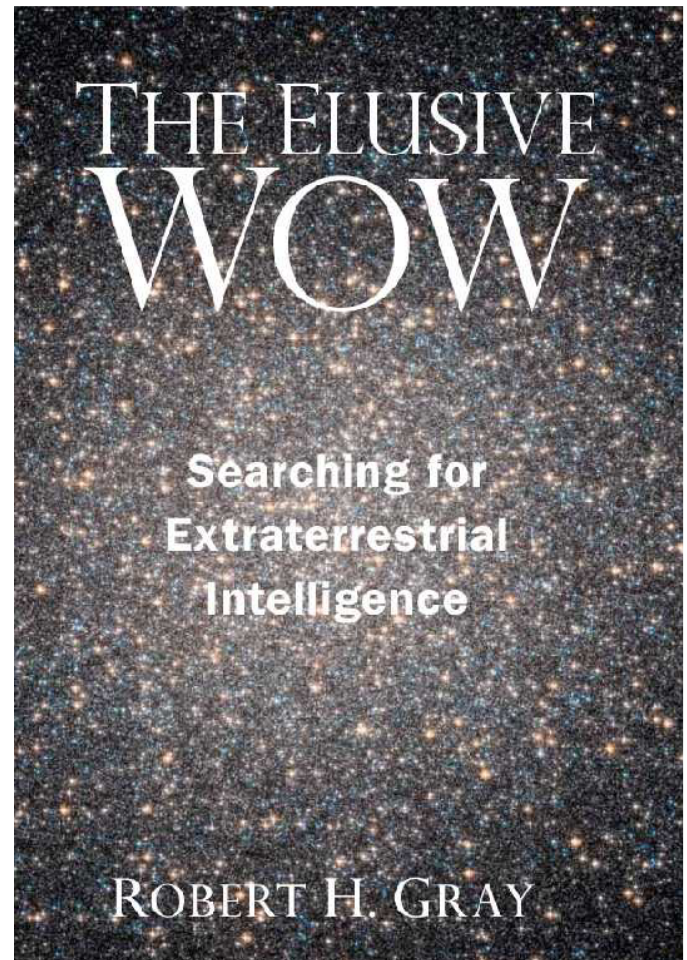
Bob Gray is chasing a ghost, something seemingly ephemeral that can neither be confirmed nor denied. Some would say he's obsessed with it. It's the same magnificent obsession that drove artists and architects of old to devote their lives to creating the wonders of the Renaissance. For nearly thirty years, the amateur radio astronomer from Chicago has been on the trail of the elusive Ohio State University "Wow!" signal, the most promising, yet enigmatic, SETI candidate to date. His new book documents his efforts, and his frustrations.

"The Elusive Wow" is really two books in one. The first part begins with a detailed account of the reception on 15 August 1977, at the "Big Ear" radio telescope facility, of a microwave signal exhibiting all the characteristics one would expect of a message from extraterrestrial intelligence, except for one: it disappeared, never to repeat. Gray describes that initial detection as a tug on the cosmic fishing line, intriguing but inconclusive. Lacking verification at the locus of initial reception, Bob set out on a quest to duplicate the detection, by casting a broader net. He devotes half a dozen chapters to his observations, first from his own backyard radio telescope (a design which presaged The SETI League's later Project Argus instruments), and later from Harvard, Tasmania, and the Very Large Array. In all cases, his net came up empty. His fascination and frustration are equally palpable.

The second half of the book is a more conventional treatise, and those not well versed in SETI folklore should probably read it first. In eight chapters (seven of which are reminiscent of the seven factors of the Drake Equation), Gray lays out the basics of SETI science. He includes a good historical overview of searches since Project Ozma, and offers his own insights into the Fermi Paradox: "Where are they?"

The book concludes with an exhaustive bibliography which should prove useful for those wishing to delve deeper, as well as a good list of web links (some, unfortunately, no longer valid, as is the nature of the Internet), a collection of formulas which should help those readers bringing themselves up to speed on radio telescopes and communications technology, and a photo gallery of some of the SETI enterprise's key players (including a delightful one of Paul Horowitz as a very young radio amateur).

My only disappointment in reading this otherwise fascinating book is that The SETI League and its Project Argus all-sky survey merited only the briefest one-sentence mention, and that merely to differentiate our search from an Ohio State University antenna design of the same name. In fact, it would have served Gray well to have devoted a chapter to the efforts of other amateur radio astronomers. We are, after all, members of a large and very mutually supportive community. Some of us even share Bob Gray's obsession.



Minutes of 2012 Annual Meeting

- **Call to Order**

The meeting was convened at 13:05 hours EDT, in the Library at SETI League Headquarters, Little Ferry NJ, by Executive Director Emeritus Dr. H. Paul Shuch. Three SETI League members in good standing present. Our Bylaws requiring one percent of the current membership to be in attendance for the conduct of SETI League business, the above represents a quorum.

- **Minutes of 2011 Membership Meeting**

The Minutes of the 2011 Membership Meeting having been previously posted to The SETI League's World Wide Web site, a motion was then passed to accept the minutes as posted.

- **Treasurer's Report**

Presented jointly by Dr. Shuch and Secretary/Treasurer Heather Wood, covering the calendar year 2011 (as e-filed).

1. Revenues: Dues and Contributions \$17,612, Interest Income \$9, Total \$17,621.
2. Expenses: Educational/Scientific Programs \$17,872, Management/General \$2,886, Fundraising \$993, Total \$21,751.
3. Revenues minus Expenses: \$(4,130).
4. End of 2011, SETI League account balances equalled \$6,851. 2010 beginning net assets \$10,981.
5. 2012 Budget: Projected Revenues \$18,005, Program Expenses \$17,000, Management/General Expenses \$4,000, Fundraising Expenses \$1,000, Projected deficit (\$2,995), Projected Ending Balance \$3,856.
6. This report was accepted by those present.

- **Executive Director's Report**

The Executive Director's annual report of Program Service Accomplishments having been previously posted to The SETI League's World Wide Web site, a motion was passed to accept the report as published.

- **Committee Reports**

- **EME Committee**

Report by SETI League president and station trustee Richard Factor. The EME beacon remains off the air. No progress to report since last year.

- **Awards Committee**

Awards Committee chairman David Ocame being absent, Dr. Shuch announced that selection of this year's Giordano Bruno Award and Orville N. Greene Award are being deferred to enable the Board to review The SETI League's award policies. Twelve websites have been given the SETI SuperStar award this year. More nominations are requested from the

members. Paul will note this in the next issue of *SearchLites*.

- **Old Business**

1. **Very Small Array**
Dr. Shuch reports that the project is on hold, due to lack of funding, with no progress to report since last year.
2. **Mid-Year Renewal Letter**
Ms. Wood will once again mail out a mid-year appeal to lapsed members. Last year's letter generated several reinstatements of lapsed members.
3. **Annual Report**
The SETI League's 2011 Annual Report is available to members via the website, in Portable Document Format (PDF). Ms. Wood will distribute hard-copies of this report to our major donors.
4. **Web Server**
Mr. Factor reports that new servers have finally been ordered. The website will migrate to the new servers as soon as they have been installed, initialized, and tested.

- **New Business**

1. The membership reaffirmed its commitment to the Vision and Mission statements of The SETI League, Inc.
2. **Next Meeting**
The next Annual Meeting will be held at the same venue. The selected date of Sunday 21 April 2013 has been verified as not in conflict with Easter, Passover, or US tax season. The meeting will be at 1300 hours EDT, to be followed immediately by the Board of Trustees meeting. The date and time will be announced to the membership via the website and newsletter.

- **Good and Welfare**

- o Dr. Shuch reported on the failing health of longtime member Allen Tough. Those present expressed their wishes for his recovery.
- o Mr. Factor reported on his upcoming relocation to his retirement home in Arizona. He informed the membership that he will be visiting his New Jersey office monthly for the foreseeable future, and thus remains able to fulfill his SETI League duties.

- **Adjournment**

The Annual Membership Meeting was adjourned by the Executive Director Emeritus at 13:32 hours EDT on 22 April 2012. A Regular Board of Trustees meeting followed.

Business Transacted by Board of Trustees:

Quorum Call

Trustees and Officers present: A. Heather Wood, Richard Factor, H. Paul Shuch

Trustees and Officers absent: Martin Schreiber

A quorum is present.

Election of Officers

The following slate of officers was retained for a one-year term:

President - Richard Factor, serving without compensation.

Secretary/Treasurer - A. Heather Wood

Executive Director Emeritus - H. Paul Shuch, serving on a volunteer basis.

Registered Agent

The New Jersey Division of Revenue requires that we designate a Registered Agent to execute certain state documents.

Mr. Factor was previously appointed to this post, and has agreed to continue serving in this capacity for an additional year.

Personnel matters

In executive session, the Secretary/Treasurer's annual performance review was completed.

In executive session, the Board of Trustees voted to continue cost-sharing of Executive Director Emeritus' health insurance premiums, as a program expense, pending availability of funds and subject to periodic review. Dr. Shuch abstaining.

Advisory Board

Establishment of a secure email alias, to permit the Executive Director Emeritus to communicate with Advisory Board members on an occasional basis, was previously authorized. Richard Factor repeated his commitment to implement this function, upon eventual activation of the new Web server.

Awards Criteria

The Board reiterated its policy that selection criteria for the Bruno and Greene awards remain the contributions and accomplishments of the recipient, but that presentation timing and venue will be selected so as to maximize publicity value to The SETI League.

Bank Fees

Fees charged for our various bank accounts were discussed. The Secretary/Treasurer recommended retaining the Bank of America account, to serve as a fiscal firewall between the Merrill Lynch and PayPal accounts. The Board considers the resulting fees to be negligible.

Adjournment

The Board of Trustees meeting was adjourned at 13:52 EDT.

Respectfully submitted, A. Heather Wood, Secretary

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.

July 26 - 28, 2012: *Central States VHF Conference*, Cedar Rapids, IA.

August 30 - September 3, 2012: *Chicon 7*, 70th World Science Fiction Convention, Chicago IL.

September 25 - 28, 2012: *Fourth IAA Symposium on Searching for Life Signatures*, Republic of San Marino.

October 1 - 5, 2012: *63rd International Astronautical Congress*, Naples, Italy.

October 26 - 28, 2012: *AMSAT Space Symposium*, Orlando, FL.

April 20, 2013, 0000 UTC - 2359 UTC: Fourteenth annual SETI League *Ham Radio QSO Party*: 3.551, 7.0309, 7.2039, 14.084, 14.204, 21.306, and 28.408 MHz.

April 21, 2013: Nineteenth SETI League *Annual Membership Meeting*, Little Ferry NJ.

August 29 - September 2, 2013: *Lonestarcon 3*, 71st World Science Fiction Convention, San Antonio TX.

September 23 - 27, 2013: *64th International Astronautical Congress*, Beijing, China.

April 19, 2014, 0000 UTC - 2359 UTC: Fifteenth annual SETI League *Ham Radio QSO Party*: 3.551, 7.0309, 7.2039, 14.084, 14.204, 21.306, and 28.408 MHz.

April 20, 2014: Twentieth SETI League *Annual Membership Meeting*, Little Ferry NJ.

September/October, 2014 (dates to be announced): *54th International Astronautical Congress*, Toronto, Ontario, Canada.

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. ❖



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Annual Renewal: Is This Your Last SearchLites?

SETI League memberships are issued for the *Calendar Year*. Please check the expiration date indicated on your mailing label. If it reads December 2011 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:

Full Member	\$50 / yr
Supporting Member (elderly, retired, or disabled)	\$35 / yr
Scholarship Member (full-time students only)	\$25 / yr
Household Member (same address as a Full Member)	\$15 / yr
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Life Member (until we make contact)	\$1,000
Sustaining Life Member – a generous <i>annual</i> pledge of:	\$1,000 / yr
Patron (priority use of The SETI League's radio telescope)	\$10,000
Director (Patron membership plus seat on advisory board)	\$100,000
Benefactor (a major radio telescope named for you)	\$1,000,000

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.

Pleased to Accept PayPal

The SETI League invites you to pay your membership dues and additional contributions via credit card, using the PayPal online payment system. Simply log on to www.paypal.com and specify that your payment be directed to paypal@setileague.org.

Name: _____

Order Your Membership Premiums:

	(u/c)*	(o)*
Pocket protectors	\$ 3	\$ 4
Mouse pads	\$ 5	\$ 7
<i>Tune In The Universe! (CD-ROM)</i>	\$25	\$30
<i>Proceedings of SETICon01</i>	\$20	\$27
<i>Proceedings of SETICon02</i>	\$20	\$27
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<i>Proceedings of SETICon04(CD)</i>	\$15	\$17
<i>SARA Conference Proceedings:</i>		
2006, 2007, 2008, 2009 (specify)	\$20	\$27
<i>SETI League Technical Manual (CD)</i>	\$10	\$13
<i>Project Cyclops 2nd Edition</i>	\$20	\$30
<i>The Listeners</i> by James Gunn	\$15	\$21
<i>Sing a Song of SETI (Songbook)</i>	\$10	\$13
<i>Sing More Songs of SETI (Songbook)</i>	\$10	\$13
<i>Sing a Song of SETI (music CD)</i>	\$15	\$17
<i>Demented! (music CD)</i>	\$15	\$17
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	\$43

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