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### Fanning the Flames of SETI Passion

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#### ABSTRACT

A half-century of observational SETI science has led us reluctantly to accept the reality that SETI success will not come quickly. Given the probable multi-generational nature of this quest, it is natural for participants to become discouraged. Lacking any realistic prospect of instant gratification, organizations coordinating and promoting SETI experiments must seek incremental rewards to hold the interest of their supporters and practitioners in the face of ongoing null results. The SETI League's awards program was designed to provide intermittent reinforcement to the SETI public, offering acknowledgment of their efforts and thus occasionally fanning the flames of their SETI passion. Anything that can be done to combat scientific burnout and promote a realistic optimism can help to keep stakeholders engaged for the long haul.

#### KEYWORDS

SETI League, Awards, Giordano Bruno, Orville Greene, ETCC, ExtraTerrestrial Century Club

#### INTRODUCTION

Are you getting bored yet? I sure am!

When Frank Drake first turned the Howard Tatel Telescope skyward in April, 1960, he optimistically believed that SETI success was imminent. And, just days into the Project Ozma search, he was rewarded with a stream of pulses, emanating from the direction of Epsilon Eridani. "My God," thought the young radio astronomer, "can it really be this easy?"

The following day brought disappointment to Green Bank, when Drake's observations showed the signal to be interference from a high-flying aircraft. And the reality began to dawn on him: this might just take a while.

We've been searching for extraterrestrial radio signals for more than half a century now, and so far, no success. (OK, well maybe not you and I personally, but as a civilization, Earth has for that long

pursued the science of SETI, and still no confirmed reception.) Radio astronomers have been engaged in the Search since its inception, and radio astronomers are notoriously impatient. So how do we hold their interest, through what might well prove a multi-generational endeavor?

The problem is that SETI offers little to he or she who demands instant gratification. After all, it is maybe a dozen thousand million years since the Big Bang, the explosion that many of us believe formed the Universe. Our Sun was formed perhaps five thousand million years ago, our Earth shortly thereafter, microbial life emerged three billion years back, and humans – just yesterday, on the cosmic clock.

And what of our ability to communicate across the cosmos, using photons, the fastest spaceships known to man? We have had the necessary technology for less than an eyeblink. So how long *should* it take to detect our cosmic

companions? No one can say for sure, but it's safe to guess it probably won't happen tomorrow.

And yet, for nearly two decades now, the nonprofit SETI League has been asking the world's radio amateurs to build up sensitive microwave receiving stations, point their antennas at the stars, and wait. And wait. And wait.

So far, the bands are dead. No wonder we're getting bored.

## POSTCARDS FROM BEYOND

SETI's only hope of holding your interest (and mine) is to establish a program of on-the-air activities, competitions, and awards. When you're huffing and puffing and running toward the goal line, perhaps you're less likely to notice that it's light-years away. So let's start with The SETI League's extraterrestrial QSL Card program, to acknowledge your reception of radio sources from Beyond.

Within the worldwide amateur radio community, DX is the international abbreviation for Distance Communications, the ham's implicit goal. And *really long* DX is the holy grail of the hobby. If you've been reading my SETI articles over the past two decades, perhaps I've convinced you by now to join the search for the *ultimate DX*. Then again, perhaps not. Quite a few of you have said to me, "It doesn't matter if I work Alpha Centauri or not. Those guys never QSL."

Those of you who are new to ham radio may be wondering, "What's a QSL?" Since early in the last century, amateur radio operators have observed a tradition of exchanging postal cards to commemorate their on-the-air contacts. So-called QSL cards (named for the International Morse Code signal for 'confirmation') are used as proof of successful radio contact with stations in rare and distant locations. Many

operators in exotic lands employ the services of a QSL manager to distribute their much sought after cards. Now, as the world's radio hams prepare for the eventual reception of signals from civilizations far out in space, the question arises as to how those succeeding at the Search for Extra-Terrestrial Intelligence (SETI) will ever receive a QSL card.

In the US, the American Radio Relay League has long administered a DX Century Club (DXCC) award for those radio amateurs achieving two-way radio contact with 100 different countries. To my knowledge, no ham has yet submitted to the DXCC administrators a card verifying contact with an alien world. And we hams in The SETI League have decided that's got to change. Which is why we have just stepped up to the plate, and volunteered our services as QSL Manager to ET. To encourage amateur participation in the growing fields of radio astronomy and SETI, we are offering special cards to commemorate confirmed reception of a variety of extra-terrestrial signals -- manmade, natural, and even alien.

Here's now it works:

Any SETI enthusiast documenting radio reception of an artificial satellite, manned or unmanned space probe, natural astrophysical phenomenon, or Earth transmission bounced off the moon or another planet, is eligible to apply for a QSL Card from The SETI League, Inc. The cards, bearing our club callsign W2ETI (as well as the acronym SETI, depicted in Morse code), indicate the nature of the signal being confirmed. Reception must have been accomplished with equipment normally used for, or capable of being used for, radio astronomy. And the signal must be received directly from a source in space, not via relay or retransmission. (For example, simply watching satellite TV, placing a telephone call which is being routed through a satellite,

or determining your location with a hand-held GPS receiver, will *not* count for a QSL Card.) But many amateurs do indeed have the capability to directly receive qualifying signals. I expect we'll be sending out many such cards.

Already, we have issued cards to those who have demonstrated reception of manmade communications and navigation satellites, beacons on space probes, Shuttle and space station transmissions, ham radio

moonbounce signals, pulsars, quasars, supernova remnants, broadband emissions from the Sun, the Moon's thermal signature, interstellar gas clouds, and the hydrogen hum of the Galactic Center. But the holy grail of SETI is a verified transmission from our cosmic companions, and no, that hasn't happened yet (X-files and National Enquirer claims notwithstanding). ET's QSL will be a rare one, but we stand ready to send it out when The Call is confirmed.



**As self-appointed QSL manager to ET, The SETI League will issue this card for confirmed reception of any electromagnetic emission emanating from beyond the Earth's atmosphere. Extra-Terrestrial QSL Cards are available for the detection of signals in a variety of categories: natural, manmade, and some day, maybe even alien.**

Amateur radio astronomers seeking a QSL card should send reception reports (including date, time, frequency, coordinates, nature and origin of signal) to SETI League headquarters, along with a stamped, self-addressed business size

envelope. QSL requests from outside the US should include two International Reply Coupons. Please state whether the signal received was natural, manmade, or alien (and be prepared to justify any claims of the latter!)

Oh, and you need not be a licensed radio amateur to participate. In the US, and many other countries as well, no government-issued license is required for receiving, only for transmitting. Since radio astronomy and SETI are Short Wave Listening (SWL) [well, actually, ETL] activities, these cards are issued merely for confirmed *reception*.

On the other hand, if you do manage to achieve two-way contact with ET, and can prove it, I think you'll be receiving a suitable acknowledgment of that accomplishment.

It's called the Nobel Prize.

## **WORKED ALL WORLDS**

OK, have you earned your spurs as an amateur radio astronomer, and are you ready for the next challenge? Here's how you can use those collected ExtraTerrestrial QSL Cards to qualify for even more lovely wallpaper.

Amateur radio astronomers and SETI enthusiasts documenting radio reception from beyond Earth of a suitable number of artificial satellites, manned or unmanned space probes, natural astrophysical phenomena, Earth transmissions bounced off the moon or another planet, or (dare we hope?) confirmed electromagnetic evidence of another civilization in space, are eligible to apply for ETCC Awards from The SETI League, Inc. The program is open to SETI League members and non-members alike, although interested radio amateurs are of course encouraged to join the nonprofit SETI League, Inc., this planet's most DX-oriented ham club.

The initial ETCC Award is issued for the properly documented detection of five unique extra-terrestrial radio signals. Endorsements are issued for the documented detection of a total of ten, fifteen, twenty-five, fifty, and one hundred such unique

sources. Detection of extra-terrestrial radio sources in the categories of Natural, Human, Moonbounce, and Alien, in any combination thereof, as defined in our Extra-Terrestrial QSL rules, will be accepted as qualifying for ETCC initial certificates and endorsements. As is the case for most awards recognizing on-the-air activities, participants are asked to pay a modest fee to cover the costs of administering this program.

Here are some of the specifics:

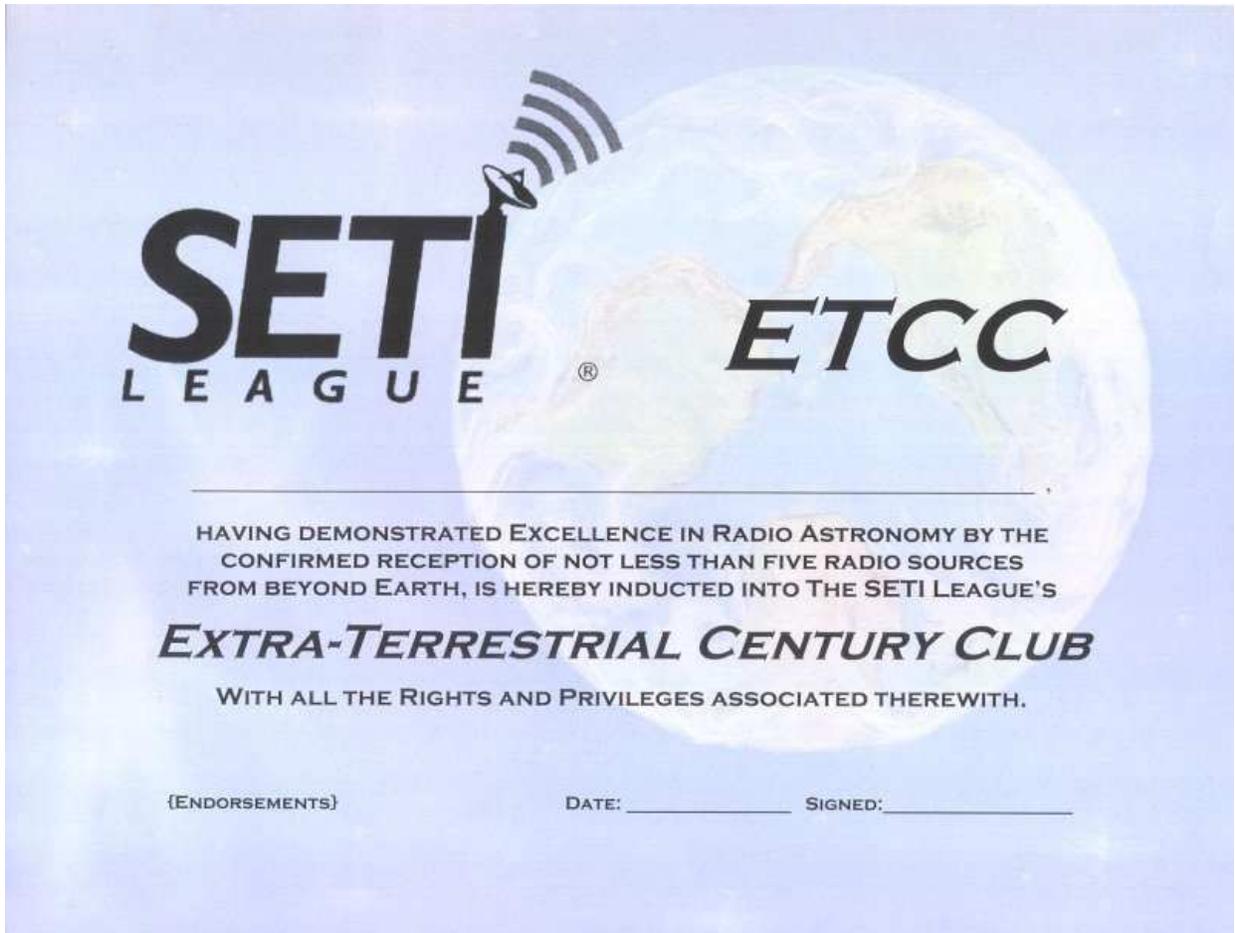
For the purpose of this award, successful ET radio detections will be evidenced solely by the submission of valid QSL (confirmation of reception) Cards. These may include Extra-Terrestrial QSL Cards issued by The SETI League, Inc., or QSL cards issued by licensed radio amateurs, documenting reception of (or two-way radio contact involving) such extra-terrestrial communications modes as moonbounce, meteor scatter, auroral propagation, and amateur radio satellites. Either the physical cards required for each award or endorsement, in such quantity as may be required (that is, all five, ten, fifteen, twenty five, fifty, or one hundred cards, as applicable), or legible photocopies thereof, must be physically submitted to The SETI League, Inc., along with the name and full postal address of the applicant. All cards will be returned to the applicant, provided that the administrative fee specified below accompanies the submission.

Detections from different, uniquely identifiable passive reflectors (i.e, a given moon, planet, specific asteroid, comet, or meteor shower) each qualify as a separate detection for the purposes of this award. Only one detection may be claimed for each source observed, except that repeat observations in different ham radio bands or radio astronomy bands will count as unique detections.

In the case of detections involving multiple examples of the same family of artificial source (e.g., multiple GPS satellites all received on the same frequency), each specific source must be positively and uniquely identified in order to count as a separate detection for the purposes of this award.

Mail all ETCC materials to:

Observing Awards  
The SETI League, Inc.  
PO Box 555  
Little Ferry NJ 07643 USA



**Confirmed reception of a minimum of five radio sources from beyond the Earth's atmosphere can qualify you for membership in the Extra-Terrestrial Century Club. Endorsements are issued for additional detections, up to a maximum of 100.**

**SOMETHING FOR NOTHING?  
'FRAID NOT!**

The SETI League, Inc. will levy an administrative fee of \$10 US for US applicants, and \$15 US for non-US applicants, for each ETCC initial certificate

and each ETCC endorsement awarded. Such fee is intended to cover the costs of administering this award and of returning all submitted QSL Cards. The administrative fee is payable in US dollar check (drawn on a US bank or US Correspondent bank) or postal money order only, and must be remitted at the time QSL Cards are submitted. Participants are of course welcome to make additional voluntary contributions to the nonprofit SETI League, Inc., which may be tax deductible to the extent allowed by law.

## THE ETCC HONOR ROLL

Earning an ETCC with endorsements is all well and good, but successful amateur radio astronomers deserve public acknowledgment, and The SETI League is out to provide it. A dozen of our most active participants to date are already listed on the ETCC Honor Roll page of The SETI League's website. Take a look; from [www.setileague.org](http://www.setileague.org), scroll down to Operating Awards and click on the ETCC endorsement graphic. I hope to be able to add your name or callsign to that listing in the coming months.

Or years. Or decades. Or centuries...



**As this is being written, nobody has yet won the coveted ETCC 100 endorsement. Perhaps you can be the first!**

## FOR SERVICE ABOVE AND BEYOND

Like all nonprofit organizations, The SETI League depends upon the volunteer efforts of its members for performance of the specific tasks required both to fulfill its mission and to ensure its continued existence. The only incentive we can offer to our members is occasional public recognition of their outstanding contributions. The Orville Greene Service Award is one way to provide such recognition.

The SETI League's annual service award honors the memory of New York City patent attorney Orville N. Greene, who passed away in 1997. As an enthusiast in the search for extraterrestrial intelligence, and to fulfill his dream of the time when we will achieve contact, it was Orville, with his extremely generous donations to The SETI League, who helped give it its start. To ensure its future, he has also generously and substantially provided ongoing support to meet its financial needs. Through the time, energy, and efforts of SETI League members around the world, we are coming ever closer to confirming Orville's dream that "We are not alone."

Recipients of the Orville Greene Service Award since its inception include:

- 2002 Stephen D. Carver, Esq.
- 2003 Prof. Allen Tough
- 2004 Ed Cole
- 2005 Prof. Rob Lodder
- 2006 Tom Sanders
- 2007 David Ocame
- 2008 Tom Crowley
- 2009 Prof. Alex Antonites
- 2011 Dr. Malcolm Raff
- 2012 Dr. Clarence Spector

(See? I told you this was all about public acknowledgment!)

## **BURNED AT THE STAKE**

At a SETI dinner held in conjunction with the International Association for the Advancement of Science meetings in Atlanta, GA USA on 17 February 1995, sociologist Donald Tarter pointed out that the date marked the anniversary of the death of Giordano Bruno, the Italian monk burned at the stake by the Inquisition 395 years prior, in part for having postulated a multiplicity of inhabited worlds. This heretical idea forms, of course, the very basis of SETI science. Don suggested that a few of us in attendance were in dire peril of meeting a similar fate – prompting an equally radical concept.

The following year (and for every year thereafter), The SETI League honored a deserving member of the world SETI community with its Giordano Bruno Memorial Award, for extraordinary efforts in the service of SETI science. Those members of our close-knit family having been found worthy of death by fire have included:

1996	Dr. D. Kent Cullers
1997	Daniel Boyd Fox
1998	Ken Chattenton & Trevor Unsworth
1999	Noel Cedric Welstead
2000	Dr. Stuart Kingsley
2001	Peter Wright
2002	Dr. Claudio Maccone
2003	Dr. Philip & Phylis Morrison
2004	Stelio Montibugnoli
2005	James Brown
2006	Marcus Leech
2007	Dr. Robert Melville
2008	Dr. Ivan Almar
2009	Dr. Jill Tarter
2010	Dan Werthimer
2011	Christian Monstein
2012	to be announced at the Naples IAC

The names of many of the above-listed recipients will, of course, be familiar to the majority of readers of this paper. In addition to honoring past achievements, the Bruno Award exists as a means of motivating the next generation of SETI scientists to fulfill our dreams of contact. Perhaps the prospect of winning a Bruno Award can serve to fan the flames of your SETI passion, or that of other SETI stakeholders.

## **CONCLUSION**

SETI is good science. It is also, in the case of many SETI League members, good amateur radio. But what is ham radio without a bit of competition? The SETI League's Operating Awards Program acknowledges the accomplishments of the world's amateur radio astronomers, while encouraging the development of those skills and technologies necessary to propel humanity into the cosmic community. When The Call finally comes in, I'm willing to bet it will be a ham who first hears it.

I'm trying. I'm waiting. Meanwhile, there's an ETCC certificate on my wall, to remind me of what this is all about. Wouldn't you like one hanging in your hamshack too?