



# The SETI League, Inc.

2007 Annual Report  
Issued 1 February 2008

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SETI scientists seek to determine, primarily through microwave and optical measurements, whether humankind is alone in the universe. Since Congress terminated NASA's SETI funding in 1993, The SETI League and other scientific groups have been attempting to privatize the research. Experimenters interested in participating in the search for intelligent alien life, or citizens wishing to help support it, should visit us on the Web at <http://www.setileague.org/>, email to [join@setileague.org](mailto:join@setileague.org), send a fax to +1 (201) 641-1771, or contact The SETI League, Inc. membership hotline at +1 (800) TAU-SETI. Be sure to provide us with a postal address, to which we will mail further information. The SETI League, Inc. is a membership-supported, non-profit [501(c)(3)], educational and scientific corporation dedicated to the electromagnetic Search for Extra-Terrestrial Intelligence.



## SETI League Vision

**Recognizing that confirmed evidence of extraterrestrial intelligence will change forever our view of humanity's place in the cosmos, The SETI League, Inc. envisions a worldwide network of amateur and professional scientists working together to hasten our entry into the galactic community.**

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## SETI League Mission

**To encourage and support the Search for Extra-Terrestrial Intelligence by:**

1. attracting a wide range of amateur and professional scientists into the SETI community;
2. developing technologies to assist the SETI experimenter in assembling a workable radio or optical SETI observatory;
3. disseminating hardware and software designs in support of SETI;
4. coordinating SETI experimenters worldwide in conducting a thorough sky survey;
5. providing a variety of forums and media for wide-ranging communication among SETI experimenters, enthusiasts, and organizations;
6. designing, assembling, and operating advanced optical and radio telescopes;
7. identifying and publicizing potential spin-off applications of SETI technologies; and
8. raising public consciousness as to the importance and significance of a broad-based Search for Extra-Terrestrial Intelligence that encompasses a variety of strategies.



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## A Word from our Executive Director Emeritus

### When Will We Reach India?

by Prof. H. Paul Shuch

When, one well may ask, will SETI succeed? We've been at this business for about a half century now, searching for radio evidence of our cosmic companions and, so far, without success. Is this an open-ended enterprise, or is success in our sights?

At the SETI Institute (a like-minded, though unaffiliated, organization), our friend and colleague Seth Shostak (you may know him as radio amateur N6UDK) has been grappling with this question, and he has proposed an answer. Back in 2004, he submitted an article to the prestigious scientific journal *Acta Astronautica* titled "When Will We Detect the Extraterrestrials?" Not one to shrink from controversy, Seth hung it all out there by proposing a definitive answer: within twenty years.

What led a respected scientist to take such a bold step, to go on record predicting SETI success within a single generation? Certainly, I'd never make such a prediction. (About a dozen years ago, I predicted 5,000 Project ARGUS stations would be online by the year 2000. The actual number turned out to be -- just over a hundred.) No, I would have counseled caution, but Seth just had to go out there and make his numbers public. Did he pull his prediction out of a hat?

Hardly. What Dr. Shostak did, what we all do, is take the measure of the problem, state a set of assumptions, and attempt a plausible extrapolation from where we are now to where we need to arrive. Based upon his assumptions about the nature of ETI (which are just as valid as anyone's), and his knowledge of technological trends (which is extensive, given his close involvement with the development of the Allen Telescope Array), he made a reasonable leap: at the rate our observational capacity is growing, if they're there, like we think they are, we should have succeeded in detecting ETI by 2025.

You can quibble about the specific assumptions, but the methodology is sound. It reminds me of the prediction Chris Columbus offered to Queen Isabella, just as he was leaving port: "If our assumptions are correct, then I should reach India in sixty days."

Of course, Columbus never reached India. Instead, he bumped into a land mass the existence of which he had no reason to anticipate, no way to predict. Unwittingly, unknowingly, Columbus discovered the New World. So, I guess you'd have to call his quest a failure.

Likewise the SETI enterprise may end up a total failure. We may never pull that elusive radio beacon out of the aether. But in trying, we are developing some incredible new technology, the very technology Seth considered in making his bold prediction. And nobody can say what great new discoveries that technology might enable along the road to SETI, success or failure.

I find the title of Shostak's article especially interesting, since it underscores a paradigm shift that has occurred within his and my lifetime. In SETI science's formative days, the deeply held perception in scientific circles was that life on Earth is unique. Today, the overwhelming majority of experts envision a universe teeming with intelligent life, just waiting to be discovered. It is no wonder, then, that the article in question is titled not "Will We Detect the Extraterrestrials?" but rather "When?" The existence of intelligent alien species is now accepted as a given. What remains to be determined is the When and the Where. Seth Shostak has already made a guess as to the When. So, I will now venture a prediction about Where:

We won't find them in India, but rather in some previously unknown New World.



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## Case for Support

Ever since mankind first used intellect to distinguish itself from the rest of the animal world, a fundamental and profound distinction became evident --- we do not seek simply to survive, we seek to understand.

Intellectual curiosity is part of what separates man from beast. And scientific endeavor has always been driven less by need than by desire. We desire knowledge not for what we can do with that knowledge, but for the sake of the knowledge itself.

Modern scientific research has until recently followed the same principle --- ask the questions, find the answers, then figure out how to apply that knowledge. But today, more and more scientific research is being dictated by a pre-determined end, an application in search of a question.

Scientific research isn't about application, but discovery. The Search for ExtraTerrestrial Intelligence (SETI) is mankind's search to know what, or who, is out there. Because it is contrary to our nature to not try and discover if there is intelligent life beyond our own world.

**The SETI League** was established in 1994 to continue the scientific research formerly conducted by NASA. When funding for NASA's SETI research was cut, it was left up to a handful of visionary pioneering scientists to privatize the search for intelligent life in the universe.

**The SETI League** is a 501 (c)(3) not-for-profit scientific research and education organization. Universal in its scope, it is international in its composition, with more than fifteen hundred volunteers in five dozen countries participating in the organization's activities.

*Project Argus* is a prime example of the type of work **The SETI League** is involved in. *Project Argus* is an effort to deploy and coordinate roughly 5,000 small radio telescopes around the world, in an all-sky survey searching for microwave signals which might possibly be of intelligent extra-terrestrial origin. When fully operational, *Project Argus* will provide the first ever continuous monitoring of the entire sky, in all directions in real time.

**SETI League** members have developed the necessary hardware, software, protocols, and procedures for distribution worldwide. Traditional research grade telescopes, of the type used by NASA, can view only a small fraction of the sky at a given time, typically on the order of one part in a million. To achieve the goal of continuous all-sky coverage would require one million telescopes, properly located and aimed. The cost for such an enterprise would exceed the Gross Planetary Product.

*Project Argus* has taken an innovative approach to the problem. By employing much smaller, relatively inexpensive amateur radio telescopes, built and operated by **SETI League** members at their own expense, we will be able to achieve an all-sky view for an infinitesimal expenditure.

Only 5,000 of these smaller instruments, properly coordinated, are required to see in all directions at once. The equipment, though modest, is capable of detecting microwave radiation from likely sources out to a distance of several hundred light years.

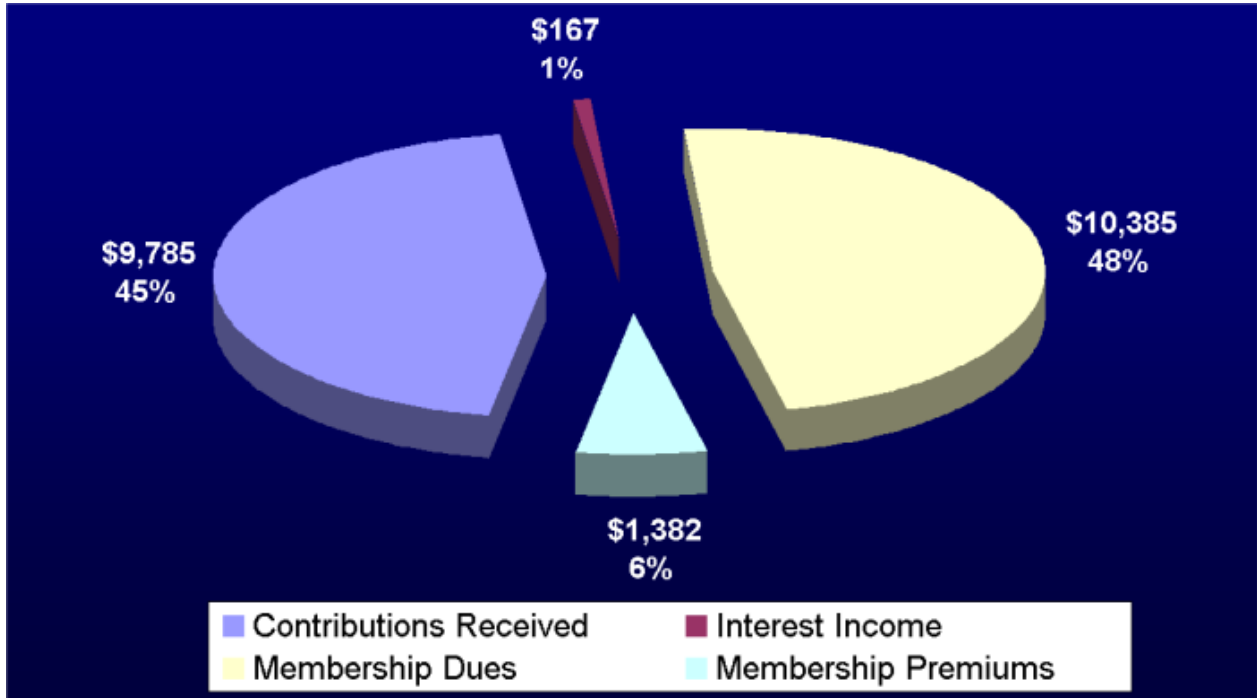
This is an example of the innovative volunteer projects in which members of **The SETI League** are engaged. And, while the relative cost of these types of projects is low, there are hard costs nonetheless.

To continue this research and expand **SETI League** activities, the organization needs to raise \$600,000 over the next three years. Membership dues, gifts, and contributions will certainly help, but it is necessary to expand funding sources beyond current levels and current sources.

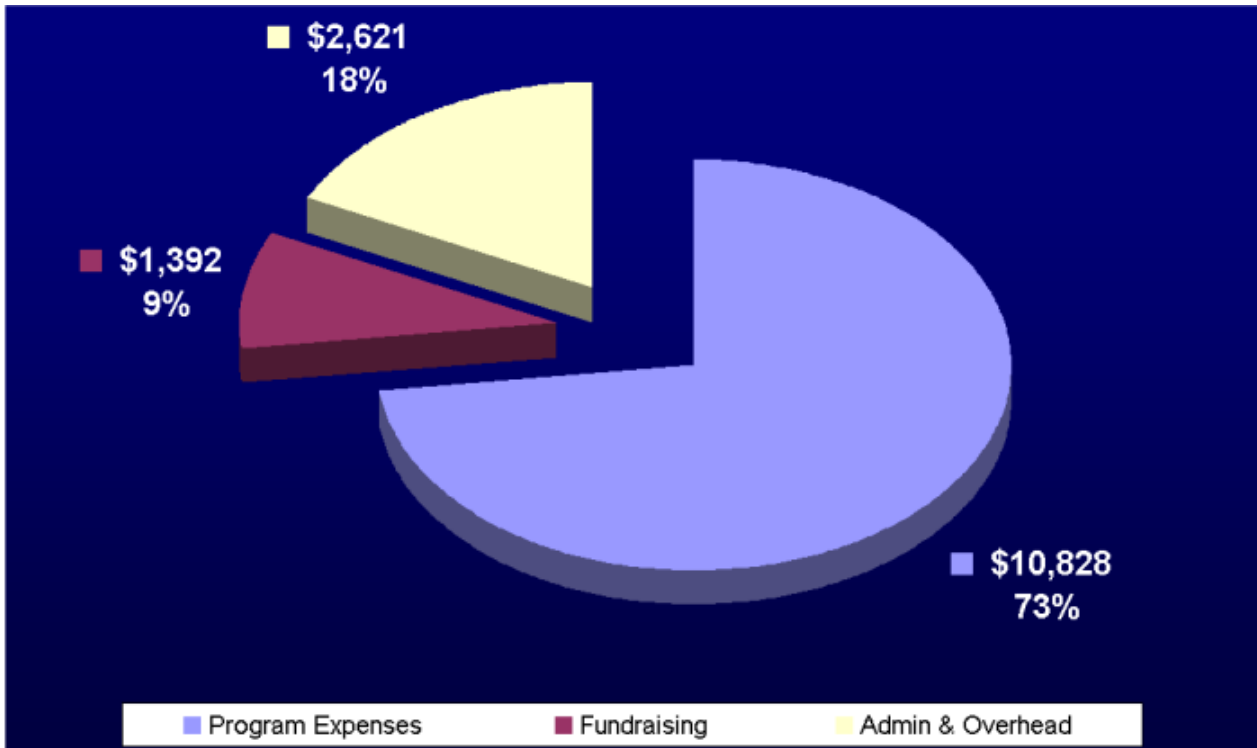
**The SETI League** is seeking investments of \$50,000 from foundations, corporations, and individuals, those who are committed to scientific research and radio astronomy.

We welcome the opportunity to present our annual report and a full proposal for funding. And while spin-off technologies and applications are an inevitable result of scientific exploration and discovery, it is the search that inspires us, that causes us to lift our eyes to the heavens and wonder.

## Financial Highlights



2007 Revenues



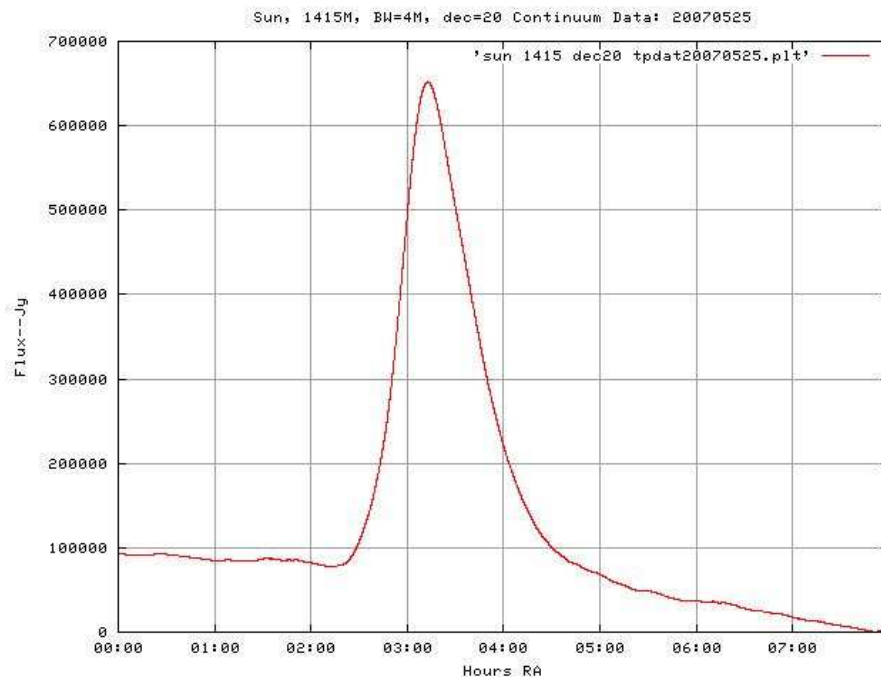
2007 Expenses



## Program Service Accomplishments – Science

During 2007, The SETI League and its members made the following contributions to radio astronomy and SETI science:

- Supported 135 Project Argus radio telescopes built by members in 26 countries on all seven continents. Coordinated their SETI and astrophysical observations. Argus stations analyzed and cataloged several new candidate signals during 2007.
- Members' stations monitored telemetry signals and science beacons from several NASA and ESA interplanetary space probes.
- Provided Committee leadership (as co-chairman) to the SETI Permanent Study Group of the International Academy of Astronautics.
- 65 SETI League members continue to lend computer support to the SETI@home distributed computing experiment, through the Berkeley Open Infrastructure for Networked Computing (BOINC).



Solar transit sweep with a Universal Software Peripheral (USRP) software-defined radio, taken at Project Argus station FN3Ing in Connecticut, USA. (WS1ETI image)

## Program Service Accomplishments – Technology

During 2007, The SETI League and its members made the following contributions to technology design and development:

- Upgraded the W2ETI Moonbounce Beacon with new antennas (ongoing). When completed, this will provide improved microwave calibration signals to the world's amateur and professional radio telescopes.
- Coordinated and archived four closed technical email lists.
- Inducted one additional amateur radio astronomer into the Extra-Terrestrial Century Club, for a total of fourteen ETCC honorees.



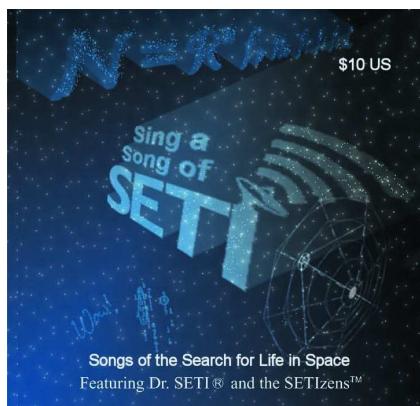
New loop Yagi antenna array being installed on the SETI League's W2ETI 1296 MHz Moonbounce Beacon. It is hoped that the beacon will be returned to service in 2008, with more than twice the effective signal power it previously delivered. (WA2IKL photo)



## Program Service Accomplishments – Public Education

During 2007, The SETI League and its members made the following contributions to educating the public on SETI science and technology:

- Executive Director delivered nine public lectures in four countries on three continents, dealing with radio astronomy techniques and related SETI science.
- Our members coordinated the 2007 Technical Conference of the Society of Amateur Radio Astronomers (SARA), a SETI League affiliate which our Executive Director serves as Vice President, editing and contributing to the Proceedings for that Conference.
- Executive Director served as Director of Education for the Radio Amateur Satellite Corporation (AMSAT), a SETI League affiliate.
- Executive Director published seven SETI technical articles in scholarly journals and the popular press, plus three SETI related papers in Conference proceedings.
- Provided webmastering services to several sister organizations, including the Society of Amateur Radio Astronomers, International Academy of Astronautics SETI Permanent Study Group, Invitation to ETI.
- Distributed CD copies of "The SETI League Technical Manual" and "Tune In The Universe!", a radio amateur's guide to the Search for Extra-Terrestrial Intelligence.
- Officers and volunteer Regional Coordinators answered numerous email queries from around the world on technical and non-technical aspects of SETI.
- Distributed numerous print and CD copies of various SETI League Conference Proceedings.
- Introduced two new music CDs including numerous SETI songs.







## Program Service Accomplishments – Media and Outreach

During 2007, The SETI League and its members engaged in the following media and outreach activities:

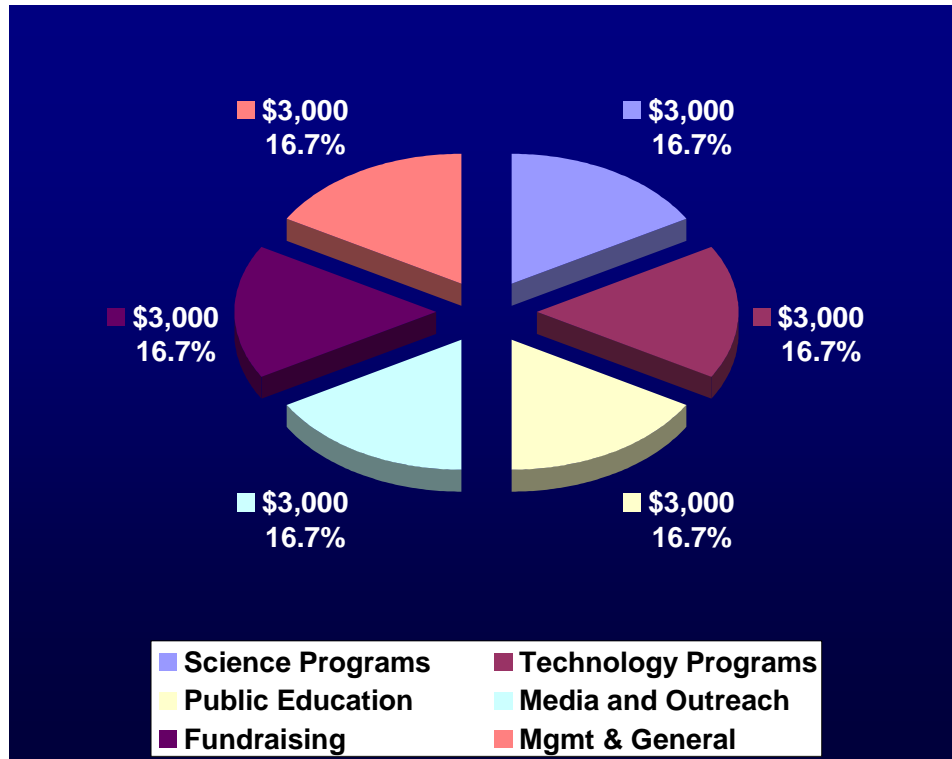
- Published four issues of SearchLites, the quarterly newsletter of The SETI League, Inc.
- Coordinated and archived two open public email lists.
- Distributed eight press releases and twelve editorials to over 700 media outlets worldwide.
- Filed 52 weekly updates to The SETI League's extensive website, bringing its total document count to over 6200 pages.
- Mailed out dozens of membership brochures to email requesters.
- Several of our 63 volunteer regional coordinators in 48 countries conducted print and broadcast media briefings and interviews.
- Executive Director granted print media and broadcast interviews in the US, Russia, Puerto Rico, India, and Germany, and appeared in television documentaries in Germany, France, and Netherlands.
- Awards Committee chairman presented the thirteenth annual Giordano Bruno Memorial Award, the sixth annual Orville N. Greene Service Award, and twelve SETI SuperStar Awards.



Award-winning Canadian science fiction author Robert Sawyer paid a visit last Spring to The SETI League's Very Small Array radio telescope. Rob has mentioned The SETI League in his past novels and short stories, and some have even featured cameo appearances by several of our members. (SETI League photo)



## Annual Budget Highlights – 2008



### 2008 Expense Budget

990 Line	REVENUES:	2008 (projected)
1d	Dues, Grants & Contributions	18,000
4	Interest & Investments	200
12	<b>Total Revenues:</b>	18,200
	<b>EXPENSES:</b>	
13	Educ. and Scientific Programs	12,000
14	Management & General	3,000
15	Fundraising	3,000
17	<b>Total Expenses:</b>	18,000
18	<b>Excess or (Deficit) for the year</b>	200
	<b>BALANCE SHEET:</b>	
19	Beginning Net Assets	11,332
21	Ending Net Assets	11,532



## Trustees and Officers

In accordance with Article V, Section 2 of the Bylaws of The SETI League, Inc., as amended, “The Board shall consist of all officers along with such other trustee positions as determined by the Board of Trustees at their annual meeting.” At its annual meeting on 29 April 2007, the Board confirmed the following officers and trustees to serve for a term of one year:

<u>Appointee</u>	<u>Position</u>	<u>Professional Affiliation</u>
Richard Factor	President	Chairman, Eventide Inc.
A. Heather Wood	Secretary/Treasurer	Executive Secretary, The SETI League, Inc.
Martin Schreiber, CPA	Trustee	Accountant, Brand Sonnenschine LLP
Marc Arnold, Esq.	Trustee	Attorney, Arnold and Lofaro
H. Paul Shuch, Ph.D.	COO	Visiting Professor of Electrical Engineering, Heidelberg University of Applied Sciences



In October, 2007, in conjunction with the Sputnik Golden Jubilee (50<sup>th</sup> anniversary of the Space Age), SETI League executive director emeritus Prof. H. Paul Shuch delivered the paper “Sputnik and SETI: Uniting East and West” to the Russian Academy of Sciences. (Alexander L. Zaitsev photo)



## Accountant's Report: Audit Not Required

**William R.  
Hoffmann, LTD.**  
Certified Public  
Accountants



Pine Street  
Professional Building  
416 Pine Street  
Williamsport, PA 17701  
(570) 326-1938 - Phone  
(570) 323-6667 - Fax

January 16, 2008

Dr. H. Paul Shuch, Executive Director  
The SETI League, Inc.  
433 Liberty Street  
Little Ferry, NJ 07643

Dear Dr. Shuch:

In accordance with New Jersey charitable registration guidelines, you are not required to have an audit of your 2007 financial statements since total gross receipts are less than \$250,000. You are only required to send a copy of your internal financial statement information along with your New Jersey registration forms.

If you have any questions or need additional information please feel free to contact our office.

Very truly yours,

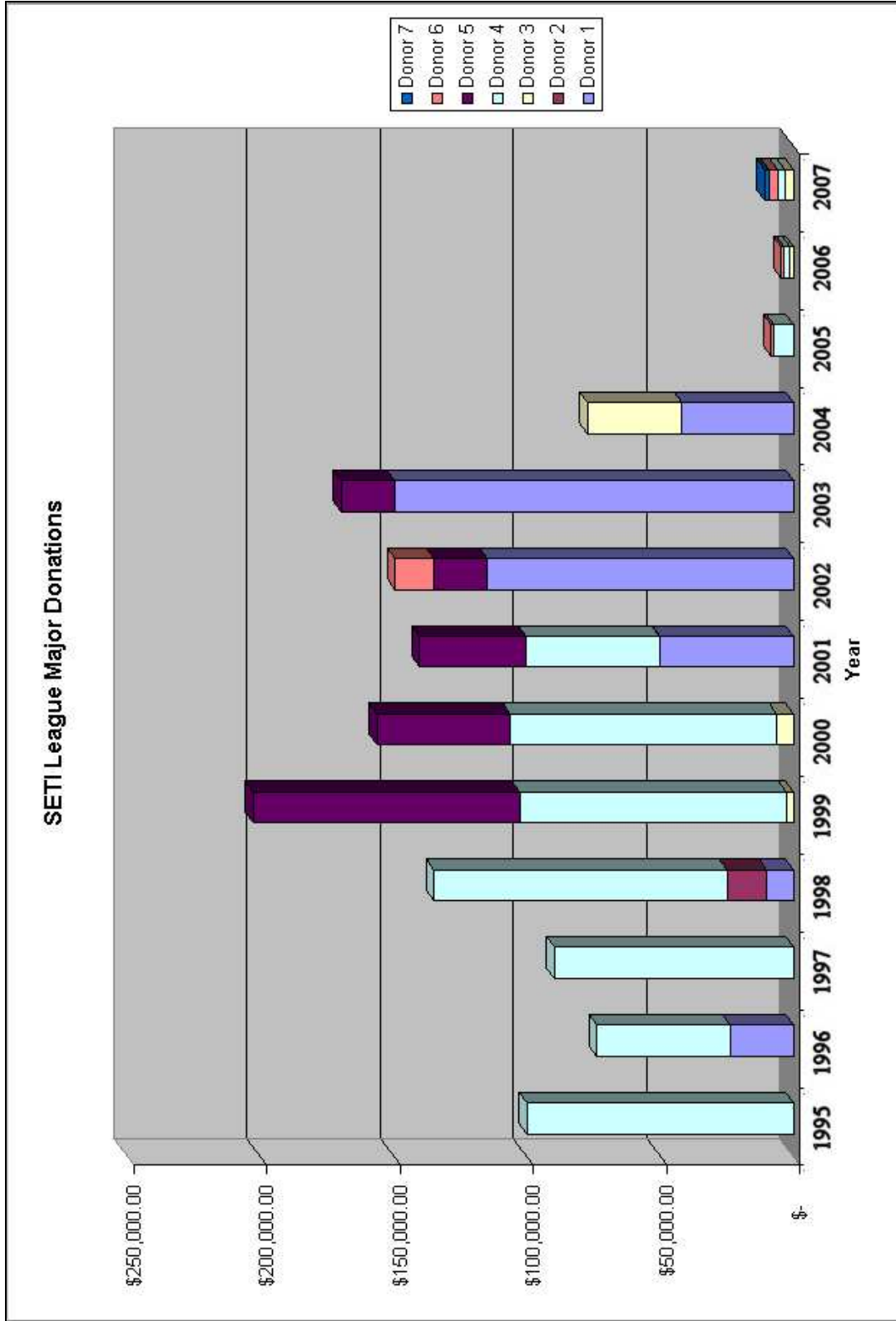
WILLIAM R. HOFFMANN, LTD.

Romey D. Fagnano  
Certified Public Accountant

Member:  
American Institute of  
Certified Public Accountants  
Pennsylvania Institute of  
Certified Public Accountants  
National Conference of  
CPA Practitioners



### Major Donations, Since Inception





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## 2007 Donors

The SETI League recognizes the extraordinary commitment of our Major Donors, each of whom has provided contributions of \$1,000 US or more, in cash or in kind, during 2007:

- Mark G. Pankhurst (British West Indies)
- Richard Factor (USA)
- The Second Foundation (USA)
- Prof. H. Paul Shuch (USA)
- Michael Woloshin (USA)

We gratefully acknowledge the following supporters, who this year have made financial or in-kind contributions to The SETI League above and beyond membership dues:

- Wolfgang Arnold (Germany)
- Scott Dorsey (USA)
- Candis E. King (USA)
- Dennis R. Murphy (USA)
- Sumio & Yoriko Nakane (Japan)
- David M. Ocame (USA)
- Malcolm I. Raff (USA)
- James Reynolds (USA)
- Christopher G. Rossie (USA)
- Pat Santoro (USA)
- Andrew P. Shuch (Germany)
- Harold Stein (USA)
- Susan Tonkin (USA)
- Lori Walton (Canada)
- Barry Wepman (USA)

The SETI League welcomes the following individuals, who became new members of The SETI League during 2007:

- Brendan John Andrews (USA)
- Ralph Broom (USA)
- Jeffrey Bytoff (USA)
- Osmar Ignacio da Silva (Brazil)
- Cesar Esteban (Canary Islands)
- Vishal Gajjar (India)
- David Hartzell (USA)
- Marko Horvat (Croatia)
- John T. Miller (USA)
- Joseph Potts (USA)
- James Reynolds (USA)
- Lee Schultheiss (USA)
- Marcus Straw (USA)
- Thomas Wagner Nielsen (Denmark)



## Additional Information

For additional information about The SETI League, Inc. and its various educational and scientific programs, please see the following pages on The SETI League website.

- Main Page <http://www.setileague.org>
- Financial Information <http://www.setileague.org/finances>
- Membership Services Department <http://www.setileague.org/admin>
- Publications Department <http://www.setileague.org/articles>
- Press Relations Department <http://www.setileague.org/press>
- Photo Gallery <http://www.setileague.org/photos>
- Technical Programs:
  - Project Argus <http://www.setileague.org/argus>
  - Very Small Array <http://www.setileague.org/vsa>
  - Array2k <http://www.setileague.org/array2k>
  - Moonbounce Beacon <http://www.setileague.org/eme>
  - Awards Program <http://www.setileague.org/awards>
  - Hardware Support <http://www.setileague.org/hardware>
  - Software Support <http://www.setileague.org/software>
  - Technical Symposium <http://www.setileague.org/seticon>
  - Dr. SETI ® On Tour <http://drseti.org>

Prof. H. Paul Shuch, our executive director emeritus, presenting a SETI League poster at the International Astronomical Union’s BioAstronomy 2007 conference in Puerto Rico. (SETI League photo)

