



# The SETI League, Inc.

2006 Annual Report  
Issued 2 February 2007

**Offices:**

433 Liberty Street  
PO Box 555  
Little Ferry NJ  
07643 USA

**Phone:**

+1 (201) 641-1770

**Facsimile:**

+1 (201) 641-1771

**Email:**

info@setileague.org

**Web:**

www.setileague.org

**President:**

Richard Factor

**Executive Director:**

H. Paul Shuch, Ph.D.

**Secretary/Treasurer:**

A. Heather Wood

**Registered Agent:**

Marc Arnold, Esq.

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H. Paul Shuch, Ph.D.  
A. Heather Wood

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Clifford Stoll, Ph.D.

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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

### Twelve Years and Counting

by H. Paul Shuch, Ph.D.

See how quickly time passes when you're having fun? I can hardly believe it's been a dozen years since Richard Factor called me up with his ridiculous idea...

Richard and I had long been the kind of friends who spoke seldom, but always looked forward to our occasional encounters. These usually occurred about once per year, generally by telephone, often as not in December. As one year drew to a close and another was poised to begin, one of us would ring up the other for an hour's chat, as though we could that quickly play catch-up on a whole year of our lives.

Richard initiated the December, 1994 call. I hadn't seen him in the flesh for perhaps five years, back when I was still living in California. I was by now teaching in Pennsylvania, but Richard and I still shared an interest in ham radio, and aviation, and technology in general. And, it turns out, we also shared an interest in SETI.

"What's going on in your life?" asked Richard with his characteristically casual demeanor. "Any new jobs? Kids? Wives?" (This latter was something of an inside joke, as Richard prides himself in 'never having made the same mistake once.')

Though I could only claim two out of three, we chatted for a while about the changes, both positive and negative, in our lives.

"Say," interjected Richard, mid-chat, "what do you know about SETI?" It was an interesting digression, but not an unexpected one, given Richard's short attention span and eclectic interests.

"Funny you should mention that," I replied. "Back in my Berkeley days, I got to know a bunch of the NASA SETI team: Jill, Barney, Kent, even Frank. And Jack was one of my advisors in grad school." (Last names, as Canadian science fiction author Rob Sawyer noted in his recent novel "Rollback", are irrelevant in that small and close-knit community.) "Pity about the cancellation of their project last year - - what was Congress thinking? Fortunately, I hear they're regrouping under private funding, and about to launch a continuation of HRMS -- something called 'Project Phoenix.' Ever heard of it?"

Richard had, so we proceeded to discuss the strengths, and weaknesses, of the SETI Institute and its efforts to keep SETI science alive in the wake of Congressional budget cuts. Being active radio amateurs, Richard and I agreed that hams represented a valuable, untapped resource that could greatly benefit the SETI enterprise.

And then, Richard dropped his bombshell. "I've just founded a SETI nonprofit of my own. How'd you like to head it up?"

Suddenly, an annual ritual had turned into a job interview. The rest of the story, how I took a leave of absence from my College, then raised some funding, ultimately resigning my Professorship to head up The SETI League, has been often retold, so I will not bore you with it again. The point is, this all started with a casual telephone call, now a full dozen years ago.

Eventually, I retired from The SETI League, was elevated to Executive Director Emeritus (all of the responsibilities, none of the benefits...) and most recently, un-retired back into academia. But The SETI League survives, thanks to the support and enthusiasm of our roughly 1500 members in 65 countries on 7 (!) continents.

So, where will the next dozen years take The SETI League? That question is on the agenda for my next annual phone chat with Richard, coming up any day now.



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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 for survival, 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 then 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 a thousand 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 infinitesimally smaller expenditure.

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

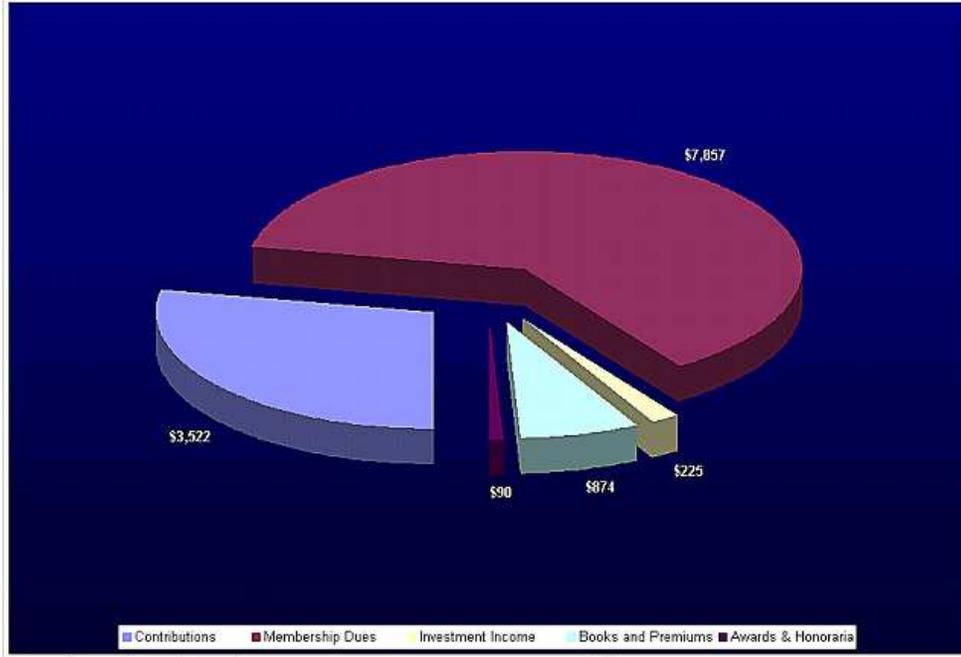
This is an example of the innovative volunteer projects that members of **The SETI League** are engaged in. And while the relative cost of these types of projects are low, there are hard costs nonetheless.

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.

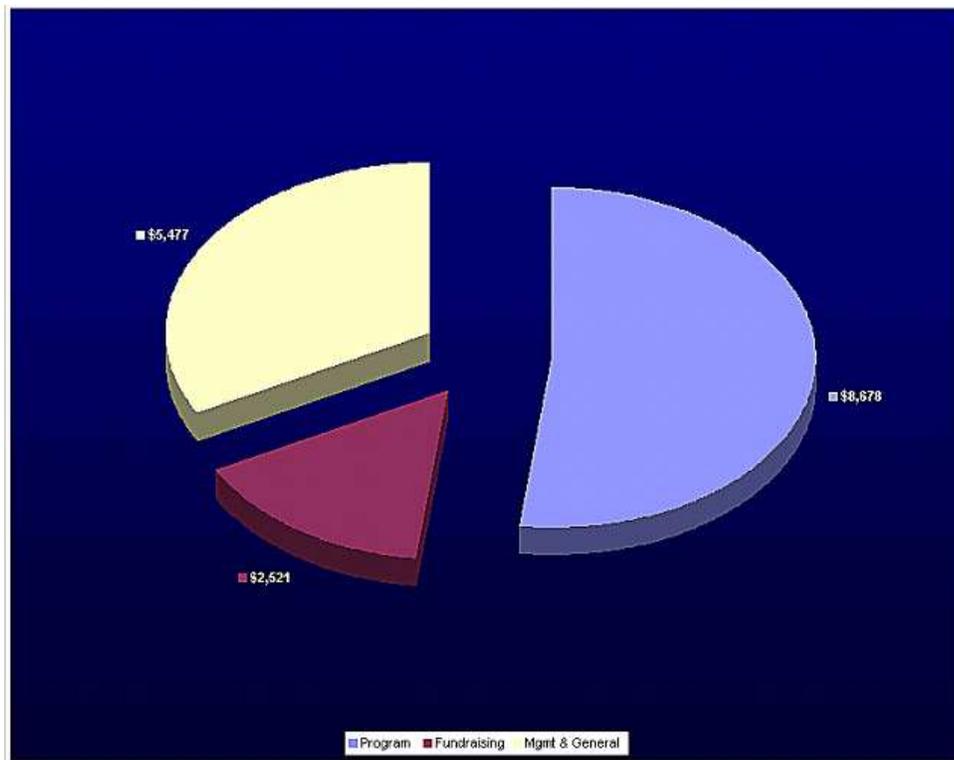
**The SETI League** is seeking investments of \$50,000 from foundations, corporations and individuals, those who are committed to scientific research and radio astronomy.

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



2006 Revenues



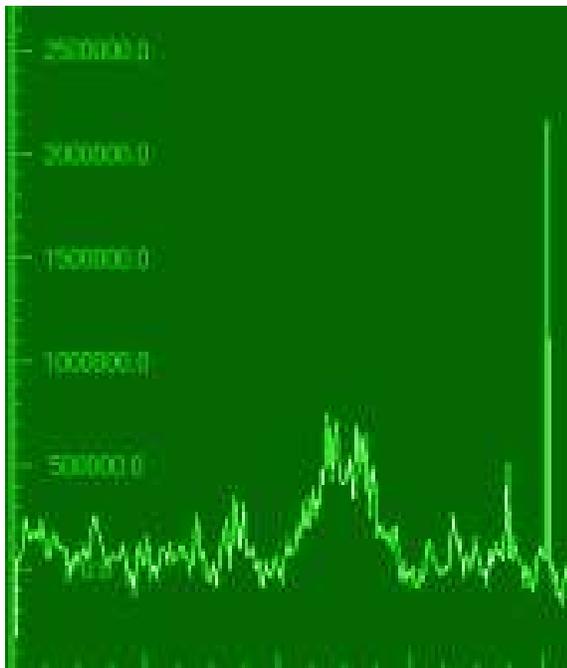
2006 Expenses



## Program Service Accomplishments – Science

During 2006, The SETI League and its members made the following contributions to radio astronomy and SETI science:

- Coordinated 132 Project Argus radio telescopes in 27 countries, built and operated by our members on all seven continents, in their SETI and astrophysical observations. Argus stations analyzed and cataloged several new candidate signals during 2006.
- Members' stations monitored telemetry signals and science beacons from several NASA and ESA interplanetary space probes. Most significant among these experiments was an attempt to observe the results of the SMART 1 probe's impact on the lunar surface.
- Performed our first millimeter-wave targeted search of two candidate stars, from the 12 meter Kitt Peak radio telescope.
- Provided Committee leadership (as co-chairman) to the SETI Permanent Study Group of the International Academy of Astronautics.
- Sixty SETI League members continue to lend computer support to the SETI@home distributed computing experiment, through the Berkeley Open Infrastructure for Networked Computing (BOINC).



Screen capture of telemetry signals from the European Space Agency's SMART-1 spacecraft, recovered by SETI League members at the Medicina Radio Observatory in Italy on Friday, 1 September 2006. Two days later, the spacecraft impacted the Lunar surface in Excellence Lake. Hundreds of GigaBytes of data collected by principal investigator Claudio Maccone and his research team will be analyzed over the coming months, for evidence of signals generated on the 22 GHz water maser frequency, possibly indicating the presence of water on the Moon.

## Program Service Accomplishments – Technology

During 2006, The SETI League and its members made the following contributions to technology design and development:

- In March, 2006, we returned the W2ETI Moonbounce Beacon to regular service with its new high power amplifier, providing 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 thirteen ETCC honorees.

The SETI League's W2ETI 1296 MHz Moonbounce Beacon, repackaged and restored to service with its new ½ kW Power Amplifier.



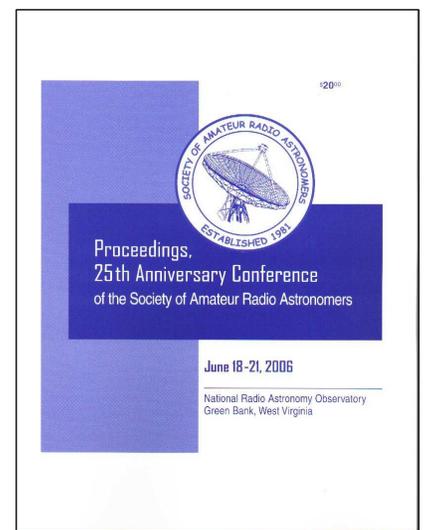


## Program Service Accomplishments – Public Education

During 2006, The SETI League and its members made the following contributions to educating the public on SETI science and technology:

- Executive Director delivered eight public lectures in three countries on two continents, dealing with radio astronomy techniques and related SETI science.
- Coordinated the 25<sup>th</sup> Anniversary Technical Conference of the Society of Amateur Radio Astronomers (SARA), a SETI League affiliate society which our Executive Director serves as Vice President. Edited and contributed papers to the Proceedings for that Conference.
- Executive Director served as Director of Education for the Radio Amateur Satellite Corporation (AMSAT), a SETI League affiliate, and completed a two-year term on that organization's Board of Directors.
- Executive Director published eight SETI technical articles in the popular and scientific press, and three related papers in Conference proceedings.
- SETI League webmaster provided webmastering services to the Society of Amateur Radio Astronomers, the International Academy of Astronautics SETI Permanent Study Group, and Invitation to ETI.
- Distributed several 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.
- Distributed numerous print and CD copies of various SETI League Conference Proceedings.

SETI League members edited and contributed several papers to the Proceedings of the 25<sup>th</sup> Anniversary Conference of the Society of Amateur Radio Astronomers, held in June, 2006 at the National Radio Astronomy Observatory, Green Bank WV. SARA is a SETI League affiliated society.





## Program Service Accomplishments – Media and Outreach

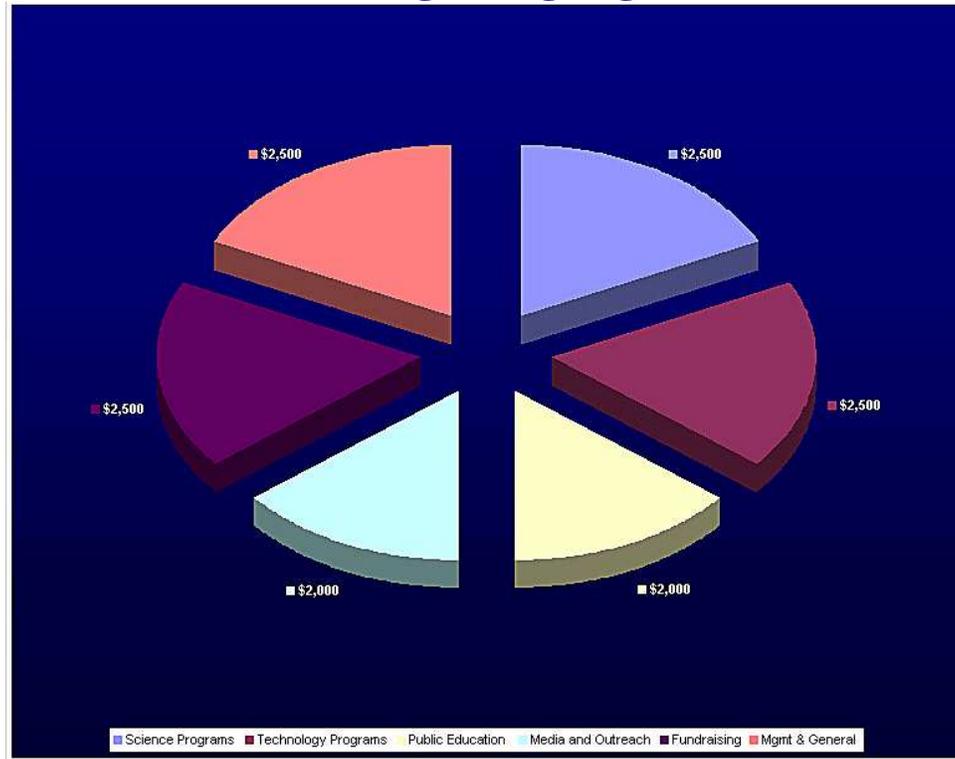
During 2006, The SETI League and its members engaged in the following media and outreach activities:

- 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 3000 pages.
- Several of our 66 volunteer Regional Coordinators in 50 countries conducted print and broadcast media briefings and interviews.
- Executive Director granted print media and broadcast interviews in the US, Spain, and Germany.
- Presented the twelfth annual Giordano Bruno Memorial Award, the fifth annual Orville N. Greene Service Award, three Best Ideas Awards, and twelve SETI SuperStar Awards.



SETI League executive director H. Paul Shuch was inducted as a Fellow of the European Radio Astronomy Club at the Fourth European Radio Astronomy Congress, held at the Heidelberg University of Applied Sciences, Germany in September, 2006. Presenting the Certificate of Fellowship to Dr. Shuch is ERAC president Peter Wright, SETI League volunteer Regional Coordinator for Germany.

## Annual Budget Highlights – 2007



### 2007 Expense Budget

990 Line	REVENUES:	2007 (projected)
1d	Dues, Grants & Contributions	11,800
4	Interest & Investments	200
12	<b>Total Revenues:</b>	12,000
	<b>EXPENSES:</b>	
13	Educ. and Scientific Programs	9,000
14	Management & General	2,500
15	Fundraising	2,500
17	<b>Total Expenses:</b>	14,000
18	<b>Excess or (Deficit) for the year</b>	(2,000)
	<b>BALANCE SHEET:</b>	
19	Beginning Net Assets	4,603
21	Ending Net Assets	2,603



## 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 23 April 2006, 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	President, 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 Physics and Astronomy, Lycoming College



During a year-long deployment to the Amundsen-Scott South Pole Research Station, SETI League member Robert Melville succeeded in activating the first SETI observing station ever to operate in Antarctica.



## Accountant's Report: Audit Not Required

William R.  
Hoffmann, LTD.

Certified Public  
Accountants



Pine Street  
Professional Building  
416 Pine Street  
Williamsport, PA 17701  
(570) 326-1928 - Phone  
(570) 323-6667 - Fax

February 2, 2007

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 2006 financial statements since total gross receipts are less than \$100,000. 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,

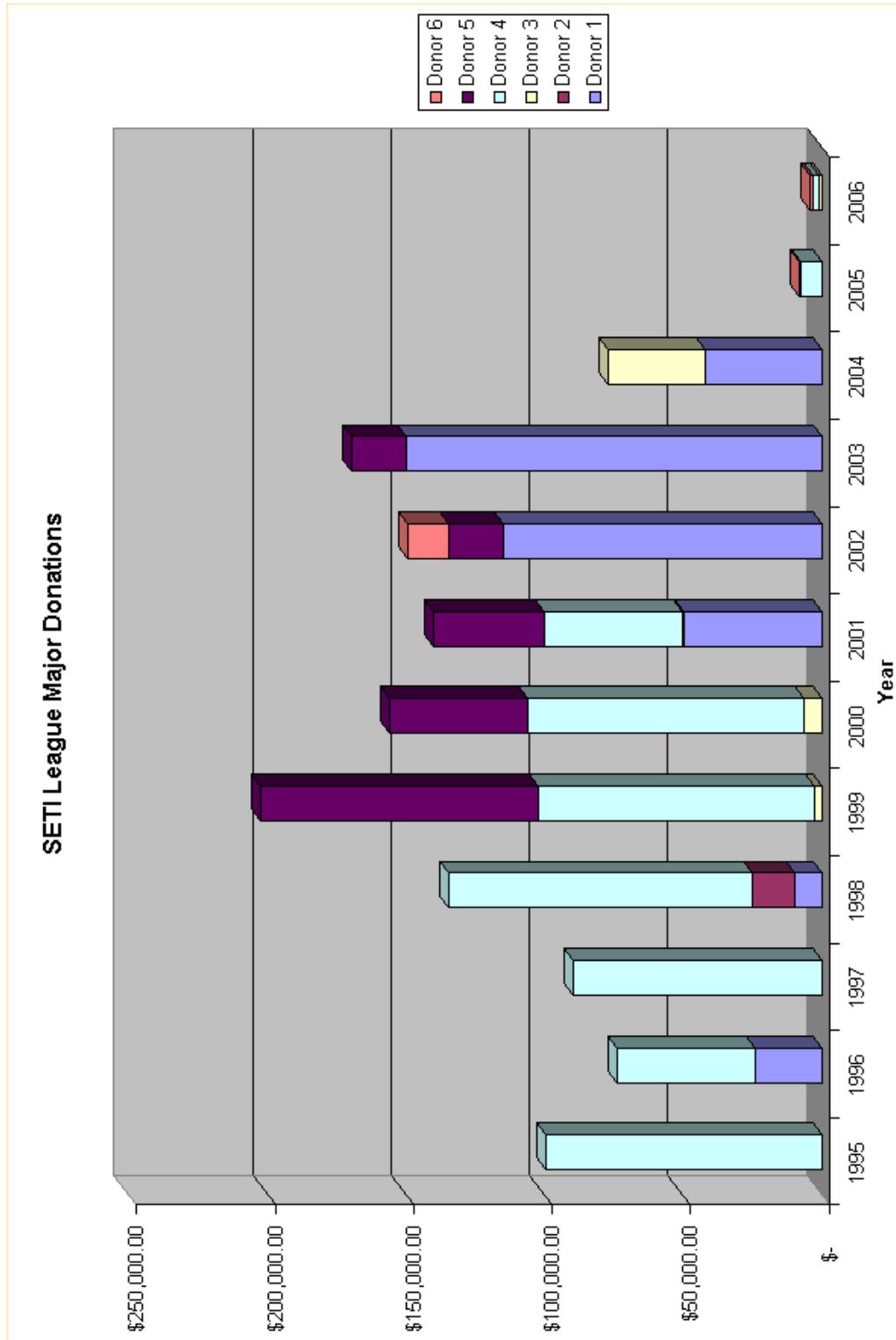
WILLIAM R. HOFFMANN, LTD.

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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## 2006 Donors

The SETI League recognizes the extraordinary commitment of our Major Donors, each of whom has provided contributions in excess of \$500 US, in cash or in kind, during 2006:

Mark G. Pankhurst  
Parent's Assoc. for Gifted Education

H. Paul Shuch  
Eventide, Inc.

We gratefully acknowledge the following members, who this year have made financial contributions to The SETI League above and beyond their membership dues:

- Dennis R. Murphy
- Roy Norris
- Malcolm I. Raff
- Susan Tonkin
- Allen Tough
- Barry Wepman
- Gregory White
- A. Heather Wood

The SETI League welcomes the following individuals, who became new members of The SETI League during 2006:

- Alan Andrea
- Wolfgang Arnold
- Eugene Charette
- William Dionne
- John DuBois
- Ronald Firestone
- George Gadbois
- Peter Gray
- Tyler Harpster
- Daniel Hart
- Bruce Lerner
- Leslie McCormick
- John Phillips
- Joseph Phillips
- Angel Torres
- LaRue Turner
- Peter Vekinis
- Gregory White

The following individual became a Life Member of The SETI League in 2006:

- David Ames



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