THE HEINLEIN SOCIETY

News and Announcements

LAZARUS LONG'S 100TH BIRTHDAY & HOWARD FAMILIES MEETING OF 2012

It's Lazarus Long's 100th Birthday year and The Howard Families Meeting of 2012

Join The Heinlein Society at the World Science Fiction Convention, Chicon 7, **Friday night** for the event destined to go down in future history... and partying like only the Long family can!***** It's the Wearin' of the Red! Red hair coloring will be provided. Join us for games, prizes, food and fun!

*Local customs and mores regarding blue mud and sufficient clothing must be observed. Red hair, kilts, and yellow bathrobes are encouraged.

The Heinlein Society annual meeting will be held during Chicon 7, in Chicago, Illinois, at the Hyatt Regency Hotel, Sunday, September 2, 2012 from 4:30-6:00 p.m. Visitors are encouraged to attend.

The Family Meeting of 2012!
It's your one and only chance to attend the Family Meeting of 2012 with the Heinlein Society on the shores of Lake Michigan. Eerie, huh? Join us for this historic (future historic, that is) meeting at Chicon!

The Heinlein Society

3553 Atlantic Avenue, #341
Long Beach, CA 90807-5606

Mike Sheffield, President:
chairman@heinleinsociety.org

For membership questions contact:
MembershipChair@heinleinsociety.org

Board of Directors:

Mike Sheffield , President

Keith G. Kato, Vice President/Secretary

Pamela Somers

Joe Haldeman

Jerry Pournelle

Geo Rule

Deb Houdek Rule

Michael Cassutt

Connie Willis

Committee Chairpersons:

Geo Rule, Education

William H. Patterson, Jr., Academic

Keith G. Kato, Social Activities

Michael Cassutt, Archivist

Alan Koslow, Mike Sheffield, Blood Drives

Pamela Somers, Membership

Deb Houdek Rule, Newsletter Editor

Rob Hays, Webmaster

David Wright, Sr., NexusForum

www·heinleinsociety·org

The Heinlein Society welcomes our new Blood Drive Chair, Scott Hann!

Scott has taken over management of the Heinlein Society's extremely successful Blood Drives program. Under the long-time leadership and dedication of Mike Sheffield, and the donor-building skills of Alan Koslow, MD, the Heinlein Society's blood drives have become some of the most successful in the entire United States. The DragonCon blood drive, in fact, may be the single largest, most successful, blood drive anywhere.

Scott Hann takes over management of the Heinlein Society blood drives after seven successful years volunteering to work at the GenCon blood drive.

Scott lives in Indianapolis, Indiana, working for Xerox and writing. His first novel, *The Red Menace*, was published three years ago. "It's SF, set in 1950, lots of flying saucers and Martian spies," Scott describes the novel. Of his new role as the Heinlein Society Blood Drive chairman, Scott says, "Each year I've worked at GenCon, I've gotten an incredible sense of accomplishment at the lives we've contributed to saving. Each one seems like a personal victory for me."

Welcome Scott, and thank you for Paying It Forward!

The Heinlein Society Wants You!

Add 'vampire' to your resume. Blood drive volunteers are needed in all areas and roles. It's not difficult and is very rewarding. Email: chairman@heinleinsociety.org to volunteer!

The total for all Heinlein Society-sponsored blood drives is now more than 13,000 units. Help us get to 20,000 units.

Blood drives coming up:

See
heinleinsociety.org/blood-drives
for upcoming donation opportunities.

The banker reached into the folds of his gown, pulled out a single credit note. "But eat first — a full belly steadies the judgment. Do me the honor of accepting this as our welcome to the newcomer."

His pride said no; his stomach said YES! Don took it and said, "Uh, thanks! That's awfully kind of you. I'll pay it back, first chance."

"Instead, pay it forward to some other brother who needs it."

Between Planets
by Robert A. Heinlein

Few have done more to Pay It Forward to the world of Heinlein fandom than those fine cobbers who put on the magnificent Heinlein Centennial convention in 2007, and, of those, Jim Gifford's contribution shines above all others. Now Jim has again contributed by giving the Heinlein Society the Centennial website content for us to host on our website. Visit "Gatherings" at heinleinsociety.org to relive that fantastic weekend!

Many thanks also to Jim for securing the dot com web domain for us!

HOW YOU CAN PAY IT FORWARD

Donate blood, whether at a Heinlein Society blood drive or elsewhere.

Organize a blood drive in your area, or at a convention you attend. Contact The Heinlein Society for assistance.

Donate Heinlein books to your hometown library. You never know when you'll affect the life of someone by introducing them to Heinlein.

Support the Butler Public Library in Robert Heinlein's hometown of Butler, Missouri.

Practice "pay it forward" in your everyday life.

Welcome and thanks to the Heinlein Society's newest volunteers!

John Seltzer—Facebook page Admin

John Seltzer has taken over as main admin for the Heinlein Society's Facebook page!

John says he discovered Heinlein by accident and then read all of Heinlein's works in a four month span. "I think I ruined my eyesight," John said. But a happy, engrossing four months it must have been!

Since starting to post on the Heinlein Society's often-neglected Facebook page, John has posted quite a few insightful and interesting posts and observations. Stop in, 'like' the page, and join in the discussions.

Thank you, John, for volunteering and Paying It Forward!

Susan Lewis Paciga – Grammar Goddess

Though Heinlein said, "Shakespeare and I never let grammar interfere with expressing ourselves," we would much prefer our website and newsletter promoting Heinlein's legacy be done correctly.

To that end, Susan Lewis Paciga has volunteered to assist with the newsletter and website, both in assuring correctness, and hopefully will soon be taking over as newsletter editor.

Susan is an English Instructor and self-described "Grammar Goddess" with an interest in science fiction, space and space exploration.

Thank you, Susan, for volunteering and Paying It Forward!

The Heinlein Society Wants You!
Do you attend conventions? Can you promote THS to mostly friendly cobbers? We need you to man our con table. We have candy. Email: heinleinsociety@gmail.com to volunteer!

Elisabeth Weir – Twitter Account Leader

Welcome to Elisabeth Weir who has volunteered to take the lead of the Heinlein Society's new Twitter account!

Elisabeth is a web design and graphics professional, skilled in social media, and Heinlein Society member. Visit her website at weir2X.com.

The Heinlein Society's Twitter account is quite new and still growing. Interesting tidbits about Heinlein, including some Heinlein quotes you've never seen before, will be appearing regularly, along with Heinlein Society updates, news, and blood drives information.

If you have a Twitter account, be sure to Follow Us at:

@heinleinsociety

Heinlein Society
@HeinleinSociety FOLLOWS YOU
We work to PAY IT FORWARD, since we can never pay back benefits we got from author Robert A Heinlein, through blood drives and educational programs. Join us.
Luna City and Beyond   http://www.heinleinsociety.org

Thank you, Elisabeth, for volunteering and Paying It Forward!

Scott Hann — Blood Drive Chair

See Page 3 to meet our new Blood Drives chairman!

July 7, 2012:

We are pleased to announce the winners of our two $500 scholarships for the 2012-2013 academic year –

Sarah McGowan
and
Meagan Nelford-Fracassi

We received a total of 43 applications from students in 13 countries. There were some very good applicants, and it wasn't easy to narrow the field to just two, but both Sarah and Meagan had well-written essays, well-defined career goals, and a laudable history of community service that demonstrated a commitment to Paying It Forward.

Sarah will be attending Princeton as a Sophomore, and Meagan will be attending USC as a Sophomore.

Congratulations, Sarah and Meagan. We're glad we could be a part of helping you on your journeys.
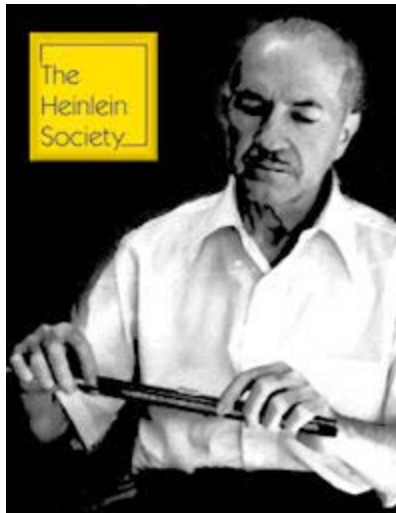
Mike Sheffield

The winners met the following eligibility requirements:

1. Full time undergraduate student enrolled in an accredited college that awards Bachelor of Science or Arts degrees.

2. Major must be Science Fiction as Literature or Engineering, Math or Physical Sciences (e.g. Physics, Chemistry).

Applicants then submitted the following items:

1. Completed application form

2. A brief explanation of career goals and biographical (background) information.

3. A 500 – 1,000 word essay on one of the following subjects:

a. How Robert Heinlein affected my career choice.
b. My favorite Robert Heinlein story and why.
c. The importance of space exploration to the future of the human race.

GRAND MASTER AWARD TO CONNIE WILLIS

Heinlein Society leaders descended en masse on Washington, DC this past May to participate in the honoring of our own Connie Willis as the newest Grand Master of the Science Fiction and Fantasy Writers of America, continuing a tradition that began in 1975 with the first such award to Robert A. Heinlein.

Truth be told, the astronaut seemed to take it well (all in a day's work for the nation's finest!).

The Nebula awards ceremony itself went off smoothly, with Walter Jon Williams performing hosting duties with his usual aplomb. Other awardees for excellence for the year included Jo Walton, Kij Johnson, Geoff Ryman, Ken Liu, Neil Gaiman & Richard Clark, and Delia Sherman. Bud Webster was also awarded for service to SFWA.

Connie was her usual gracious and funny self, and found time to visit with the THS table amongst all the hoopla. Society members at our table included Michael Cassutt, Deb Houdek Rule, Pamela Somers, Robert Preisinger, Geo Rule, and Beatrice Kondo.

One THS board member who shall remain nameless squealed like a schoolgirl when a NASA astronaut in his jumpsuit was spotted in the crowd, and forced another board member to perform formal introductions immediately.

THE COMPLETE WORKS OF ROBERT A.

HEINLEIN

Limited Edition

46 LEATHER BOUND VOLUMES

To order your set visit:
www.virginiaedition.com
Payment plans are available

- Set includes all of Heinlein's published work, restored to the last version he had a hand in preparing.
- Featuring never before published correspondence and screenplays.
- Each volume has a unique icon, frontispiece photograph of Heinlein and is individually hand numbered with a limited print run.
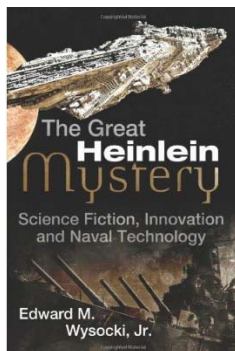
HF08A001

www.virginiaedition.com
713-861-3600

The Great Heinlein Mystery: Science Fiction, Innovation and Naval Technology by Edward M. Wysocki, Jr. was released July 3, 2012 and is available on Amazon.com. *The Great Heinlein Mystery* looks at statements made by Robert A. Heinlein claiming a system used by the U.S. Navy during World War II was based on the content of one of his early stories. He consistently refused to identify the system or to provide key details such as the story or the person who was inspired to create the naval system, giving as his reason the secrecy of the naval system.

Edward M. Wysocki, Jr. received his Ph.D. in Electrical Engineering from Johns Hopkins University. This was followed by over three decades with a major defense contractor. He has had a lifelong interest in science fiction, with a particular focus on the works of Robert A. Heinlein. Dr. Wysocki is a member of The Heinlein Society and the Science Fiction Research Association.

The Robert A. and Virginia Heinlein Prize Trust is proud to announce the completion of the **Virginia Edition**, the complete works of Robert A. Heinlein.

The Robert A. and Virginia Heinlein Prize Trust, in cooperation with The Robert A. and Virginia Heinlein Library Foundation, oversaw all aspects of The Virginia Edition – named for Heinlein's wife Virginia who was a vital part of both his life and writing career. "She is my best friend and my severest critic," Heinlein wrote.

"If Virginia were here and I could tell her about all the things the Trust has done," said Arthur Dula, Trustee and Literary Executor, "I would begin with the Virginia Edition. We believe that Mr. Heinlein was not just a great science-fiction author or a great American author but that he was a great author. His books are available in more languages and there are more movie options on his work than there were while he was alive and I believe that speaks to the enduring quality of his work.

"This collection is one of the largest and most significant publishing events in the last century. By making Heinlein's work available to the world I believe we have made a big step in satisfying the trust placed in us by—the debt we owe to—Robert and Virginia."

The Virginia Edition is a leather-bound 46-volume collection of 2,000 sets printed on 50-pound acid-free and buffered paper that meets all US archival standards. In addition to all of Heinlein's works of short fiction, long fiction, and nonfiction, the Virginia Edition includes 450,000 words of almost entirely unpublished correspondence and each volume is contextualized by an article from William H. Patterson, Jr., Heinlein biographer, and Dr. Robert James, Heinlein Scholar. For more information, please visit: www.virginiaedition.com

Heinlein For Heroes

The Heinlein Society is working to build a new program called "Heinlein for Heroes."

Heinlein for Heroes is an effort to provide Heinlein books, and those of similar authors, to our military troops.

We've been discussing the program over the course of this last year with a number of Heinleiners from various branches of the service. We'll be starting the program with the US, but would like it to expand to Canada and the rest of the world soon.

Ideas brought forward include:

"… encourage the exchange services to carry in-print Heinlein titles. Exchange buyers, distributors, and publishers would be involved and some publisher incentives might have to be negotiated to make it possible. Another thing to do would be for THS members to deliver spare Heinlein titles to their local Airport USOs; used books would be fine--new ones would rapidly become used. Many bases, even some very small ones, still have libraries and donations are generally gratefully received."

"Just thinking of what I see at my doctor's visits and wondering if hospitals are included. If so, audiobooks will be needed."

**Heinlein For Heroes
Wants You!**
*Are you military or retired military? We need a coordinator for the Heinlein for Heroes program.
Email:
heinleinsociety@gmail.com
to volunteer!*

Herb Gilliland, who teaches courses on Heinlein at the US Naval Academy at Annapolis, has found a distribution means to get the books to where they need to be. He said:

"I have liaised with an outfit that sends desired books to military people. I suggested we might have a couple hundred copies of Heinlein novels in paperback to send. The response was enthusiastic. So that is one half of the equation. Now, we need to get the copies."

So, with many good ideas, and a start to distribution in place, what do we need?

You.

We need a coordinator for the Heinlein for Heroes program. Not all the work will fall onto one person, but we need someone, preferably with a military background, to oversee the program and work with the volunteers in other areas to bring everything together.

We also need books, and people to acquire books, book donations, and monetary donations to purchase and ship books. If you're good at fundraising, or sales and marketing, and think you can help convince publishers and others to contribute, we'd like you to join up on this program.

We think Heinlein for Heroes will be a great program in many ways, and hope you can help!

The Heinlein Maneuver by G. David Nordley

Some time ago I asked friend and author G. David Nordley how accurate Heinlein really was when he wrote of planetary orbits and spaceship trajectories. I referred him to a technical paper I'd found on the Internet examining "The Heinlein Maneuver." This is the maneuver described in Heinlein's novel The Rolling Stones*. I expected Gerald would do a quick piece saying either, "Yes, Heinlein was right," or "No, Heinlein was wrong." Instead it's evolved into a research project for Gerald that is leading to a much longer paper. I recently told him if he gets a Nobel Prize out of this I want to be mentioned in his acceptance speech!*

Deb Houdek Rule
THS Newsletter Editor

G. David Nordley is an astronautical engineer whose second career is writing. His main interest is the future of human exploration and settlement of space, with stories typically focusing on the dramatic aspects of individual lives within the broad sweep of a plausible human future. His research fuels also nonfiction articles. He is a four-time winner of the AnLab, the Analog reader's award for best story or article of the year, and a past Hugo and Nebula award nominee.

The Heinlein Maneuver
by Gerald David Nordley

At the beginning of chapter 7 of his novel, *The Rolling Stones*, Robert Heinlein introduces the gravity well maneuver:
"A ship leaving the Moon or a space station for some distant planet can go faster on less fuel by dropping first toward the Earth and then performing her principle acceleration while as close to the Earth as possible."

This is a variation on a maneuver introduced by Hermann Oberth in his book *Wege zur Raumshiffahrt (Ways to Spaceship Travel),* Zerlag, Munich-Berlin 1929. Oberth used a whimsical interstellar example about a ship leaving an asteroid for a distant star, but the principle is the same.
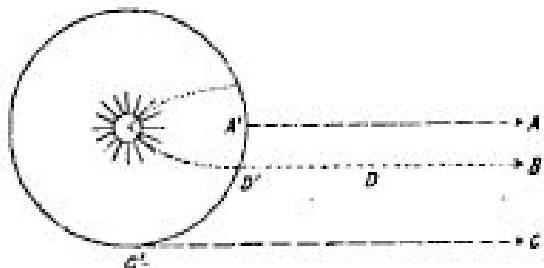

Fig. 1. Oberth's figure 66. Compare the trajectory to B with that to C.

Below, I have redrawn Oberth's figure to correspond to the Earth-Moon System, and specifically the trajectory of *The Rolling Stone* (B' to B). What matters here is called "hyperbolic excess velocity," which is the velocity a spacecraft would have after the maneuver at an infinite distance from the center of the central mass, often abbreviated as v(inf).
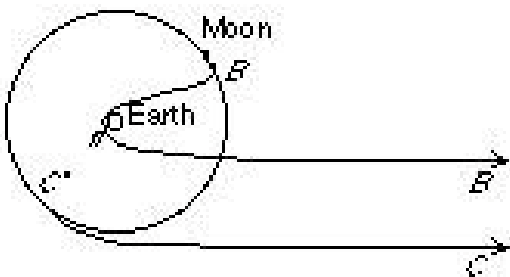

Fig. 2. *The Rolling Stone* version of Oberth's fig. 66

For simplicity (I'll address some of the complexities later in an online article), we shall assume a spacecraft like *The Rolling Stone* is in lunar orbit.

The average velocity of the moon in its orbit is about 1.02 km/s. To lower its perigee to an altitude of 200 km above the surface (lower would increase air friction), the spacecraft does a Δv (change in velocity) of 840.627355 m/s. I kept the decimals to remind us that this must be an extremely precise maneuver; as many of us remember from the Apollo days.

When the spacecraft reaches perigee (π, in figure 2.) it is moving at almost exactly 11 km/s. Its computer fires its engines (with manual backup ready) at four g's for a minute. This results in a Δv of about 2.352 km/s and a new perigee velocity of 13.352 km/s at π. Our *Rolling Stone* coasts away from Earth, eventually slowing to a "hyperbolic excess" velocity of 7.4 km/s.* on its way to Mars. Adding the 0.841 km/s it used to leave lunar orbit gives a total Δv of 3.193 km/s.

If *The Rolling Stone* had simply added 3.193 km/s to its orbital velocity at Lunar distance (C' --C in figure 2), it would get a v (inf) of about 4 km/s relative to the Earth. So the gain from using trajectory B' - B instead of trajectory C' - C is about 7.4 - 4.0 = 3.4 km/s. Where does that come from? We can't put off an equation any longer. Hyperbolic excess velocity, given a velocity

of v, at a radius of r, from the center of a mass with a gravitational parameter, μ is :

$$v(\inf) = sqrt(2*(v2/2 - \mu /r)) = sqrt(v2 - ve2)$$

Where "ve" is the minimum escape velocity at r. The secret of the gravity well maneuver is that, when one adds something to a number that is to be squared, one gets a bigger increase when the number to be squared is bigger to start with.

Let's start with 1, and add 3, to get 4, and square that to get 16. Your gain for adding 3 is 15 (16 minus 1 squared) Now start with 10, and add the same 3, to get 13, and square that to get 169. Your gain for adding 3 is 69 (169 minus ten squared). This happens in any circumstance where one is adding to numbers that are squared, such as the Pythagorean theorem ("the square of the hypotenuse...").
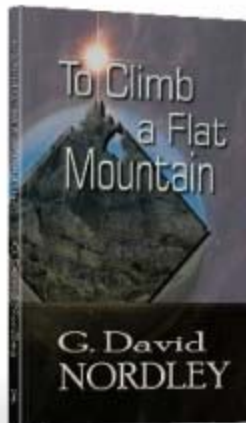
Orbital velocity is greater the closer one is to the planet. So adding to velocity down

Available at Amazon.com

there gets you more than adding it higher up. But getting down there costs Δv and the escape velocity is also higher at lower altitudes, so one has a tradeoff. The maneuver only works if the original orbit is high enough and the Δv large enough. For the 2352 km/s of our simplified *Rolling Stone* model, one would get a gain for all circular orbits down to a radius of 27,667 km. There both the "gravity-well" and "single-burn" maneuvers would produce a hyperbolic excess velocity of about 5.37 km/s. Below that, the single-burn maneuver would be better. Heinlein, possibly following Oberth, who says something similar, explains the gain in terms of the mass of the rocket propellant. Having fallen from the Moon's distance to just above the cloud tops the propellant has acquired a lot of kinetic energy, so its expenditure gets rid of more energy, which accrues to the spacecraft.

The Heinlein Maneuver by G. David Nordley

The problems with that explanation include:

(1) The hyperbolic excess velocity equation has nowhere to put propellant mass or energy. It is a *specific energy* equation.

(2) If *The Rolling Stone* used a more fuel efficient drive (like an ion rocket) it would use less propellant mass. But it would get the same benefit for the same Δv. In fact, if it had a drive that *didn't use any propellant at all*, like a beam sail, it would still get the same benefit! Δv is Δv.

We don't blame Heinlein; he probably got the best advice available at the time, and some form of this "explanation" has been often repeated in more recent technical papers. I've probably spent more time researching the question than he took to write the novel! No doubt the subject will still result in all sorts of discussion.

Were I less busy and more mathematically adept, I'd investigate the question in the far more complex spacecraft-Earth barycentric formulation, where one does not assume the Earth is fixed. Its reflex motion would be very, very tiny, but is multiplied by an immense mass.

I could also make an analogy to the Pythagorean theorem, another sum-of-the-squares equation. No one gets upset when at small angles, a small addition to the hypotenuse makes for a large addition to the opposite side. It's just the way the math works.

> * Yes, 7.4 km/s is not a Hohmann transfer to Mars velocity, and with the heavens aligned properly that Δv could get *The Rolling Stone* to Mars in about 90 days. But that's the subject for another article.

Our by-laws, adopted by the Board of Directors in 2002, and as amended, require that the board conduct an annual general membership meeting each year during the time and at the place of the annual World Science Fiction convention, when held in North America, and when not at a place in North America, at whatever place it shall determine.

This is written notice of that meeting, as required in our by-laws, to each member entitled or likely to be entitled to vote at the meeting. You will be entitled to vote only if you are registered as a regular member and only if your dues are fully paid up through the current year of 2012 at the time of the meeting. An opportunity to make dues current will be afforded members prior to and at the beginning of the meeting. Supporting members are not entitled to vote, but, subject to ruling of the chair, may address the meeting.

This year's meeting will be our Society's eleventh annual general meeting. The meeting will be held during Chicon 7, in Chicago, Illinois, at the Hyatt Regency Hotel, Sunday, September 2, 2012 from 4:30-6:00 p.m. Visitors are encouraged to attend.

The regular order of business specified in the by-laws to be observed is that customary for non-profit membership charitable corporations and will include election of three directors of The Society for three positions on the Board for a term of three years, as specified in the bylaws. Further business consistent with the by-laws will occur at the meeting.

The Family Meeting of 2012!
It's your one and only chance to attend the Family Meeting of 2012 with the Heinlein Society on the shores of Lake Michigan. Eerie, huh? Join us for this historic (future historic, that is) meeting at Chicon!

You may vote at the meeting in person, or by an assigned written proxy, if you are eligible to vote at the time of the meeting. All proxies must be written, signed, and notarized, or accompanied by a clear and legible photocopy of a government-issued photo identification containing a signature for comparison purposes, to be valid.

Further, the proxy must designate in writing the person to exercise the proxy; and must be received by the Secretary of the Society by postal mail or in person at or before the time of the meeting. If you mail your proxy to the Society's postal address in Long Beach, California, please note that an officer of the Society will finally check that post office box address on the evening of August 23, 2012, and it is solely your responsibility to ensure it arrives by that time. You may designate any natural person to attend the meeting and vote your proxy. The by-laws specify that failure of a non-attending member to designate a proxy shall constitute designation of the president as the holder of the proxy of the member not in attendance.

We all hope as many of the Society's members as possible do attend the meeting.

The Heinlein Society

Detach here to mail:

Name:

Street Address:

City: **State/Province:**   **Zip/Postal Code:**   **Country:**

E-Mail Address:

Home Telephone:

I wish to join and work on
the following projects (check
as many as you wish):

___ Membership

___ Library support

___ Scholastics-Academics

___ Blood Drives

___ Fund-raising

___ Education

**Annual Membership Dues Check
(Please enclose check):**

Regular Membership $35 ___

*Supporting Membership: $15 ___

*Supporting membership is available **only** to
students enrolled for a degree or certificate, or retired
on a limited income. It confers **no** eligibility to vote or
hold Society office.

Other Projects I'd like to see
The Heinlein Society work on:

The Heinlein Society

3553 Atlantic Avenue, #341
Long Beach, CA 90807-5606

www.heinleinsociety.org