

# The Skyscraper

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The monthly publication of



Amateur Astronomical Society  
of Rhode Island

47 PeepToad Road  
North Scituate, RI 02857

[www.theskyscrapers.org](http://www.theskyscrapers.org)

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See back page for directions to  
Seagrave Observatory.

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Please submit items for the newsletter by  
June 15 to Jim Hendrickson, 1 Sunflower  
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# The Skyscraper

June 2007

## June Meeting with Lisa Kaltenecker

FRIDAY, JUNE 1ST AT SEAGRAVE OBSERVATORY

### HOW TO FIND FINGERPRINTS OF EARTH-LIKE EXOPLANETS

In a famous paper, Sagan analyzed a spectrum of the Earth taken by the Galileo probe, searching for signatures of life. They concluded that the large amount of oxygen and the simultaneous presence of methane traces are suggestive of biology. In this talk we discuss biomarkers and focus on what makes a habitable planet, using Earth as our example. What can we see? How can we detect those faint planets? What happens to a planets around different stars? How do we find them? How do we pick our targets? From the first bacteria to dinosaurs to take-out, what can we find? We live in an exciting time when the detection of life's signatures on worlds orbiting other stars maybe achievable within a generation.

Lisa Kaltenecker got her MS from the Karl Franzens University in Austria on ground based search for extraterrestrial planets in 1999 and her ME from the University of Technology of Graz in Austria for work on biophysics in cancer research in 2001. For her PhD she worked on the design of the Darwin and Terrestrial Planet Finder mission as part of the design team at the European Space Agency (ESTEC). Darwin and TPF are missions that is designed to detect earthlike planets around others stars. She graduated in 2004 under the auspices of the president of Austria as honor for outstanding academic achievements in her career. She currently holds an SAO postdoctoral position at the Harvard Smithsonian Center for Astrophysics in Boston, working on characteristics of extrasolar terrestrial planets and biomarkers in its atmosphere as well as the search for those planets around other stars.

## JUNE 2007

**1** 7:30PM **June Meeting**  
FRIDAY Seagrave Observatory

**2** 8:00PM **Mars Phoenix**  
SATURDAY **Presentation & Public**  
**Observing Night** Seagrave  
Observatory

**9** 8:00PM **Public Observing Night**  
SATURDAY Seagrave Observatory,  
weather permitting

**16** 8:00PM **Public Observing Night**  
THURSDAY Seagrave Observatory,  
weather permitting

**23** 8:00PM **Public Observing Night**  
SATURDAY Seagrave Observatory,  
weather permitting

**30** 8:00PM **Public Observing Night**  
SATURDAY Seagrave Observatory,  
weather permitting

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## President's Message

*Glenn Jackson, President*

Congratulations Skyscrapers on reaching another milestone. 75 years rich with history, travel, science, public out reach programs, and camaraderie. A Standing "O" to the 75th committee for putting together a memorable event., especially Kathy Siok, Dave Huestis, Dolores Rinaldi, and Bob Horton. Those attending were treated to an incredible presentation by Gerry Dyck that let us revisit "Sidewalk Astronomy at Roger Williams Park" the first "AstroAssembly" in 1952, the "Portable Planetarium at the Warwick

Mall", the "Solar Eclipse of 1925", the "1970 Transit of Mercury " and many more memorable moments in our history.

In addition, our guest speaker William Penhallow re-introduced us to our old friends of Skyscrapers: Charles Smiley founder of Skyscrapers; Phil Newmarker; Donald Reed; Dr. Fred Whipple of the "Dirty Snowball" theory of comets fame and Charles Oliver of the American Meteor Society.

As I reflect on the evening I am amazed at the history of Skyscrapers and I am proud to be a part of this tradition.



Outgoing president Dave Huestis presents vice president and incoming president Glenn Jackson with an honor at the 75th anniversary banquet meeting, May 5, 2007. Photo by John Kocur



# Astronomical Highlights in June

*Dave Huestis*

During the last couple of years the month of June has been astronomically quiet. There once was a meteor shower around the 16th, the June Lyrids, but it has virtually disappeared. We still have magnificently ringed Saturn to view for a couple of months, so if you haven't seen this beautiful planet through any of the telescopes at Seagrave Observatory, you better plan to visit our facilities soon on any clear Saturday night.

Yes, there will be other celestial objects to see, but in June most of these will require a telescope of some aperture to view any details.

One "event" the casual stargazer can watch with the naked-eye is the Moon passing near some prominent stars and planets over the course of several nights. Once the Sun sets and evening twilight deepens on the 16th, you shouldn't have any difficulty locating the thin crescent Moon just above the west-northwest horizon. Up and to the right of the Moon you'll see Pollux and Castor, the primary stars of the constellation of Gemini. The next evening, the 17th, the Moon will be to the right and below Venus. On the 18th you'll find a larger crescent Moon down and to the right of Saturn (half way between the "true lord of the rings" and Venus). Then on the 19th the Moon will be very close to the star Regulus in the constellation of Leo.

Keep in mind that each night beginning on the 16th, the Moon will appear higher and further to the

left in the western sky. Should you have a telescope this would be a good time to observe some lunar craters, determine the "phase" of Venus, and to observe Saturn's rings before he disappears into the increasing twilight.

The summer solstice occurs at 2:06pm on the 21st. Seems like we just got out of winter! Believe it or not the daylight hours will then begin to get shorter once again. Where does the time go??

In addition, if you really want to study the Moon's craters in greater detail with a telescope, wait until the 22nd when it will be at First Quarter. Then direct your gaze at the terminator, the "line" that separates the day and night area on the lunar surface. During First Quarter this line indicates the sunrise point. Long shadows are cast providing some interesting views of craters with their central peaks and steep walls, as well as mountain peaks and smooth lunar seas.

And finally, at month's end keep your eyes on Saturn and Venus. Watch as these two planets move closer to one another in the western sky. On July 1st they will be separated by just two-thirds or so of a degree, which is a little more than the diameter of the Full Moon.

Don't forget to visit Seagrave Memorial Observatory on any clear Saturday night for a tour of the heavens. Visit our web site for additional information: [www.theskyscrapers.org](http://www.theskyscrapers.org).

Keep your eyes to the skies.



## Kitt Peak National Observatory

Photo by Jim Hendrickson, May 13, 2007. More photos from the Arizona trip coming next month.

# The Ions of Dawn

By Patrick L. Barry

This summer, NASA will launch a probe bound for two unexplored worlds in our solar system's asteroid belt—giant asteroids Ceres and Vesta. The probe, called Dawn, will orbit first one body and then the other in a never-before-attempted maneuver.

It has never been attempted, in part, because this mission would be virtually impossible with conventional propulsion. "Even if we were just going to go to Vesta, we would need one of the largest rockets that the U.S. has to carry all that propellant," says Marc Rayman, Project System Engineer for Dawn at JPL. Traveling to both worlds in one mission would require an even bigger rocket.

This is a trip that calls for the unconventional. "We're using ion propulsion," says Rayman.

The ion engines for the Dawn spacecraft proved themselves aboard an earlier, experimental mission known as Deep Space 1 (DS1). Because ion propulsion is a relatively new technology that's very different from conventional rockets, it was a perfect candidate for DS1, a part of NASA's New Millennium Program, which flight-tests new technologies so that missions such as Dawn can use those technologies reliably.

"The fact that those same engines are now making the Dawn mission possible shows that New Millennium accomplished what it set out to," Rayman says.

Ion engines work on a principle different from conventional rockets. A normal rocket engine burns a chemical fuel to produce thrust. An ion engine doesn't burn anything; a strong electric field in the engine propels charged atoms such as xenon to very high speed. The thrust produced is tiny—roughly equivalent to the weight of a piece of paper—but over time, it can generate as much speed as a conventional rocket while using only about 1/10 as



Artist's rendering of Dawn spacecraft, with asteroids. Largest are Vesta and Ceres. Credits: Dawn spacecraft—Orbital Sciences Corporation; background art—William K. Hartmann, courtesy UCLA.

much propellant.

And Dawn will need lots of propulsion. It must first climb into Vesta's orbit, which is tilted about 7 degrees from the plane of the solar system. After studying Vesta, it will have to escape its gravity and maneuver to insert itself in an orbit around Ceres—the first spacecraft to orbit two distant bodies. Dawn's up-close views of these worlds will help scientists understand the early solar system.

"They're remnants from the time the planets were being formed," Rayman says. "They have preserved a record of the conditions at the dawn of the solar system."

Find out about other New Millennium Program validated technologies and how they are being used in science missions at <http://nmp/TECHNOLOGY/infusion.html>. While you're there, you can also download "Professor Starr's Dream Trip," a storybook for grown-ups about how ion propulsion enabled a scientist's dream of vis-

iting the asteroids come true. A simpler children's version is available at <http://spaceplace.nasa.gov/en/kids/nmp/starr>.

*This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.*



An Executive and a Regular Meeting of the Skyscrapers were held Monday, June 6th at 7:50 p.m. at the Park Museum.

Rev. John G. Crawford submitted the following By-Laws for the society:--

1. The name of this Organization shall be, "The Skyscrapers Amateur Astronomical Society of Rhode Island.
2. Its purpose is to bring together, for mutual benefit, persons really interested in Astronomy, either as Teachers, Craftsmen, or Laymen.
3. The officers shall consist of a President, a Vice-President, a Secretary, and a Treasurer; these latter two offices may be vested in one person.
4. There shall be the following Committees regularly constituted:-- Executive Committee; Membership Committee; Program Committee. To these others may be added as the need arises of a temporary or a permanent nature.
5. The officers and the committees shall be elected at the May meeting in each year, and shall hold office until their successors have been duly elected.
6. The Executive Committee shall consist of five members who shall be the President, Vice-President, the  
with two members elected at the Annual Meeting. Their duties shall be to originate or consider all matters of interest that are to come before a Monthly or an Annual Meeting, and to assist the officers in general direction of the affairs of the Society.
7. The Membership Committee shall consist of three, and shall consider all applications for membership in the Society. They shall be governed in their decisions by the principle that, "Membership in the Society is a privilege rather than a right;" and membership shall be confined to those who can show a definite and real interest in Astronomy.
8. The Program Committee shall consist of three, and it shall be their duty to arrange the program for each meeting.
9. There shall be three classes of members: Active, Honorary and Associate members. Minimum age for Active members shall be twenty years.
10. Voting shall be confined to Active members.
11. Honorary membership may be offered to anyone who has distinguished himself in any branch of theoretical or practical astronomy. When favorable action has been taken by the membership committee, the names shall be submitted to the executive

committee and by them presented at a Regular meeting of the Society. Each name, thus submitted, shall be accompanied by a short minute which shall become a part of the records of that meeting.

12. The dues shall be \$2.00 a year for Active, and \$1.00 a year for Associate members and shall be payable in advance at the Annual meeting for that year. Only those whose dues are paid shall be entitled to vote, and non-payment of dues shall automatically remove a member's name from the roll. Re-instatement shall be through the Membership committee as in the case of new members. There shall be no dues for Honorary members.
13. Meetings shall be held monthly on the first Monday and the first Wednesday of the month alternately. Meetings may be omitted at the pleasure of the members, upon motion duly made and seconded.
14. There shall be one Open Meeting annually to which the general public shall be invited.
15. The By-Laws may be added to or changed by a two-thirds vote of the Active members present at any meeting: provided that notice of motion to change or add to, be made at a regular meeting, and at least one meeting shall intervene between the date of Notice and the date of voting on the motion.

Copy of Notice telephoned to city editor of Providence Evening Bulletin, Friday, May 6th.

"The Sky Scrapers, an organization of amateur astronomers has been formed under the auspices of Brown University, at the invitation of Prof. Charles H. Smiley. The first meeting was held at the Ladd Observatory on Thursday eve, May 5th. Rev. John G. Crawford of Saunderstown was elected president; Mrs. Elizabeth H. Morpeth Vice-President; Miss Maribelle Cormack, Sec'y.-Treasurer.

Persons desiring admission to the organization may submit their names and reason for seeking membership to the secretary, Miss Maribelle Cormack, at the Park Museum, Roger Williams Park."

The secretary spoke with Mr. Avery E. Lord, Special Story writer for the journal. He promised to consult with Prof. H.L. Koopman, an editorial writer, and felt sure he would be eager to give the organization space on the editorial page.

Prof. Koopman telephoned asking for information. We mailed a complete copy of the minutes of the meeting for his editorial comment. He was interested and may attend the next meeting. His editorial comment appeared in the Sunday Journal, May 8th. Notice of the organization was sent to the Museum News, organ of the Am. Museum Ass'n.

Prof. Smiley reported the formation of the group to the Brown Herald.

Notices were sent at his request to 145 students registered in the Brown extension course in astronomy.

Notice was sent to the Scientific American.



**Heads of Science Dep's. in Br. H.S.**

Hope - Richard O. Dummer

Tech - Mr. Brown, Physics Dept.

Commercial \* Harold M. Dean

Classical - Herbert Ward.

**Junior High. Heads of Science Departments.**

- Oliver H. Perry -- Miss Gage
- Esek Hopkins -- Miss Eagan
- Nathan Bishop -- Miss Clarke
- Nath. Green -- Mr. Mayan
- Gilbert Stuart -- Miss Brennan
- Roger Wms. -- Miss Sweeney
- Bridgham -- Mr. Sullivan
- George West -- Mr. Ryan

**Nature Teachers in Grammer Schools.**

- Miss Wilhelmina Null - Candace
- Miss Vera Acquarone - Kenyon
- Miss Marie Oatman - Veazie
- Miss Alice Beard - Laurel Hill

**Science Committee**

**Mr. Carroll and Miss Polk, Supervisors.**

**RHODE ISLAND "SKYSCRAPERS"**

The birth of a new cultural organization, "The Skyscrapers, Amateur Astronomical Society of Rhode Island," is announced. At the invitation of Professor Charles H. Smiley of Brown University, a group of local star-gazers met at the Ladd Observatory last Thursday evening and organized themselves under this name "to bring together for mutual benefit persons really interested in astronomy, either as teachers, craftsmen or laymen." They plan to hold meetings every month. Rev. John G. Crawford of Sauntertown is the president, and Miss Maribelle Cormack of the Park Museum is the secretary-treasurer.

The new society is to be congratulated for several reasons. Its subject matter will never give out. It is a live subject, for every star in the sky is a fountain of energy. It is a growing subject, for within a very few years the known size of our cosmos of universes has doubled and doubled again. The whole totality of material existence is now claimed by the astronomers. Sir James Jeans's popular but authoritative work, "The Stars in Their Courses," is concerned with the atom and its parts and with the outermost nebulae—the one known only by laboratory tests and the other only through photography—and with all between. So our amateurs take the entire scope of material creation for their province as Lord Bacon took all knowledge for his.

Sunday Journal.  
Providence. May 8.

Nor is this presumption. Amateurs are welcomed by professional astronomers, for they furnish them with an appreciative public and can relieve them of certain types of observation such as the hellical risings and settings of the stars. They often anticipate the professionals in the discovery of comets and "novae," or new stars. Two of these rare last-named appearances were discovered by one Scotch amateur astronomer. Meteors can be observed as well by amateurs as by professional astronomers. At the coming eclipse of the sun next August many of its features will be observed and recorded by the host of amateurs who will invade the region of totality. They may be counted on to take some of the best photographs of the progress of the eclipse. Altogether, our newly organized amateur astronomers will have a plenty to do, and we wish them success and happiness in doing it.

**DR. HARRY LYMAN KOOPMAN  
ADDRESSES ASTRONOMERS**

40 Members of the Skyscrapers Hear Brown Librarian Emeritus.

Dr. Harry Lyman Koopman, librarian emeritus of Brown University, addressed more than 40 members of The Skyscrapers at the monthly meeting of the amateur astronomical society at Ladd Observatory last evening. Dr. Koopman spoke on the winter constellations, describing their composition and historical background. He also spoke of

the precessional path of the North Pole and explained how the star Vega was the North Star 13,000 years ago and how it will be the North Star in another 13,000 years.

The society inspected the painting of the 1932 total solar eclipse recently completed by Rodman B. Allen, a Junior at Brown University.

It was decided to leave the minimum age of Associate members to the membership committee; that the chair should appoint a nominating committee at the April meeting to report at the annual meeting in May; that meetings may be omitted at the pleasure of members, or date changed by action of executive committee; that the membership committee should consist of at least three.

The By-Laws were accepted.

Professor Smiley and Mr. George Ewart were elected to the executive committee.

A letter was read from the Scientific American.

The Secretary was instructed to answer Mr. Patten's letter to the effect that we thought it not advisable to become a branch of the Providence Engineering Society as our club was already organized. It was decided that we would be overshadowed by the larger society. There would be no gain to the club and the dues are six dollars a year.

Mr. Patten was advised in a separate letter that he had been elected to membership in the Skyscrapers.

The minutes of the last meeting were read and accepted.

Since the May meeting seven new members were voted on by letter:

- Miss Marian F. Bonner
- Miss Gertrude F. Crosby
- Mrs. Josephine Curvin
- Mrs. Florence M. Gairlock
- Mr. W. T. Grinnell
- Miss Angelina M. Pettey
- Miss Inez Hawkes

Fourteen new members were elected at the June meeting:

- Mrs. Edith Tappan
- Miss Helen F. Clarke
- Miss Bertha Daley
- Mr. Franklin Huddy
- Mr. Francis B. Keeney
- Mr. H. D. Hyland
- Dr. H. L. Koopman
- Mr. Chester A. Mowry
- Mr. John A. McAlevy
- Miss Wilhelmina Null
- Mr. Ernest R. Hager
- Mr. R. C. Patton
- Mr. Edward Forsythe
- Mr. Dexter Hyland

All three honorary members were accepted:

- Mr. Robert E. Brown
- Mr. Frank E. Seagrave
- Dean Clinton H. Currier

Professor Smiley spoke on, "What Amateurs Can Do In The Field Of Astronomy."

1. Learn constellations by plotting meteor trails. Star maps will be furnished for one dollar a year by Professor Olivier of the American Meteor Society. Meteor notes are given in Popular Astronomy.

Reverend Crawford spoke on making telescopes. He assured beginners that the pleasure repaid the grief and woe.

He told of photographing the pole star to show curve of star movement about the pole; of photographing the heavenly equator to show curves of movement of stars; of photographing meteors and counting the number on the plates; and of using two cameras to check for height.

Observing variable stars was discussed. A group of observers meets in October at Harvard. The brightness of a star is marked as between 9 3/10 and 9 5/10. Reports are sent in to Harvard.

Professor Smiley told of the splendid work done in Poland where the largest telescope is only eight inches. He said that twelve amateurs scattered over a wide area. They could accomplish more than one professional.

Brown and Harvard will loan telescopes to responsible parties. The cost of materials for mirrors for telescopes was discussed.

Mr. Franklin Huddy spoke on making telescopes in the seventh grade, using cardboard tubes and old eye glass lenses.

Attention was called to the arrival of the Perseids, August 11-12, sometimes sixty-nine meteors appearing in an hour. Three or four showers a night expected June twenty-seventh and twenty-eighth.

Mr. Prentice spoke on his early interest in stars and telescopes.

It was suggested that a question box be established.

Mr. Hager gave mimeographed outlines of information on the coming eclipse of Aug. 31st. to members who desired them.

# Treasurer's Report

4/1/2007 - 5/16/2007

Jim Crawford, Treasurer

INFLOWS	
Uncategorized	\$7.52
Anniversaryinc	\$1,056.00
dues	
Contributing	\$671.00
Family	\$470.00
Regular	\$520.00
Senior	\$50.00
TOTAL dues	\$1,711.00
magincome	
Astronomymaginc	\$68.00
skytelmagincome	\$197.70
TOTAL magincome	\$265.70
Starparty	\$112.00
<hr/> TOTAL INFLOWS	<hr/> \$3,152.22
OUTFLOWS	
Anniversaryexp	\$2,016.00
astroexp	
Astroreception	\$100.00
TOTAL astroexp	\$100.00
collation	\$100.00
membersubscriptions	
Astronomymagexp	\$68.00
Skytelexp	\$164.75
TOTAL membersubscriptions	\$232.75
Portajohn	\$35.00
Postage and Delivery	\$22.23
Utilities	
Electric	\$19.36
Propane	\$371.79
TOTAL Utilities	\$391.15
<hr/> TOTAL OUTFLOWS	<hr/> \$2,897.13
OVERALL TOTAL	\$255.09



# Directions to Seagrave Memorial Observatory

## **From the Providence area:**

Take Rt. 6 West to Interstate 295 in Johnston and proceed west on Rt. 6 to Scituate. In Scituate bear right off Rt. 6 onto Rt. 101. Turn right onto Rt. 116 North. Peeptoad Road is the first left off Rt. 116.

## **From Coventry/West Warwick area:**

Take Rt. 116 North. Peeptoad Road is the first left after crossing Rt. 101.

## **From Southern Rhode Island:**

Take Interstate 95 North. Exit onto Interstate 295 North in Warwick (left exit.) Exit to Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.

## **From Northern Rhode Island:**

Take Rt. 116 South. Follow Rt. 116 thru Greenville. Turn left at Knight's Farm intersection (Rt. 116 turns left) and follow Rt. 116. Watch for Peeptoad Road on the right.

## **From Connecticut:**

- Take Rt. 44 East to Greenville and turn right on Rt. 116 South. Turn left at Knight's Farm intersection (Rt. 116 turn left) and follow Rt. 116. Watch for Peeptoad Road on the right.
- Take Rt. 6 East toward Rhode Island; bear left on Rt. 101 East and continue to intersection with Rt. 116. Turn left; Peeptoad Road is the first left off Rt. 116.

## **From Massachusetts:**

Take Interstate 295 South (off Interstate 95 in Attleboro.) Exit onto Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.



47 PEEPTOAD ROAD  
NORTH SCITUATE, RI 02857