



STAR FIELDS

Newsletter of the Amateur Telescope Makers of Boston
Including the Bond Astronomical Club
Established in 1934
In the Interest of Telescope Making & Using

Vol. 12, No. 3 March 2001

This Month's Meeting...

Thursday, March 8th, 2001, at 8:00 PM
Phillips Auditorium, Harvard-Smithsonian
Center for Astrophysics

This Month's Speaker...

THIS MONTH'S guest speaker is Dr. Robert P. Stefanik, Director of the Smithsonian Astrophysical Observatory's Oak Ridge Observatory facilities. Dr. Stefanik is also an astronomer at the Harvard-Smithsonian Center for Astrophysics, and a lecturer on astronomy at Harvard University. His research activities involve observational study of stellar systems using stellar radial velocities with particular emphases on the formation and evolution of stellar systems, stellar masses and the search for substellar companions.

More than four dozen planet candidates have been discovered. These discoveries have renewed interest in the search for extraterrestrial intelligence. Along with the radio SETI efforts, new optical SETI projects are coming online. Dr. Stefanik will review the research activities at Oak Ridge Observatory in these areas. Dr. Stefanik's topic will be "SETI and the Search for Low Mass Companions to Stars at Oak Ridge Observatory".

Join our most excellent speaker and us for dinner at 5:45 PM at the Changsho Restaurant located at 1712 Mass Ave. in our fair city, Cambridge.

President's Message...

THE STELLAFANE Convention held in Springfield, Vermont is scheduled for August 17-18, 2001. If you have never been there I would highly recommend that you go. There are tent talks late into the night, mirror-making demonstrations, telescope competitions, and, weather permitting, all night observing. My favorite activity is the Saturday morning flea market. Oh, yes, and

they serve food and coffee throughout the day and night. (See their web page <http://www.stellafane.com>)

Since we have quite a few members making telescopes this year, I thought it would be fun for those of us who complete our telescopes in time, to set up our scopes in the competition area by the "Pink Clubhouse" as a group representing the ATMob. A strong showing would convey that we are an active club involved in telescope making.

I would also like our club to participate in the Stellafane Flea Market early Saturday morning. Our clubhouse is full of stuff that we need to clear out to make rooms useable for astronomy related activities. We have lots of stuff that we could sell. The money could be used for club activities. The re-occurring problem for our club is that members who go to Stellafane tend to hunt for bargains at the flea market Saturday morning, and don't want to be stuck behind a table selling stuff and miss browsing other tables for bargains. So this year I'm looking for at least three volunteers who would be interested in setting up a table to sell some of our junk. To make things easier, all items would be labeled and priced. So please let me know at the next meeting if you would be interested in helping us out.

-Bob Collara, President-

February's Minutes...

PRESIDENT BOB COLLARA opened the 734th meeting of the Amateur Telescope Makers of Boston, including the Bond Astronomical Club.

Many of the newspapers and magazines recently reported that two different groups of physicists have been able to make light stop and then release it again. Our guest speaker was Dr. Alois Mair from the Harvard-Smithsonian Center for Astrophysics. The title of his talk was "The Storage of Light". He was a participant in the experiment in which a light pulse was effectively decelerated and trapped in a vapor of rubidium (Rb) atoms, stored for a controlled period of time, and then released on demand. This "storage of light" was accomplished by dynamically reducing the group velocity of the light pulse to zero, so that the coherent excitation of the light was reversibly mapped into a Zeeman (spin) coherence of the Rb vapor. The experiment is described in the *Physical Review Letters* of January 29, 2001 - Volume 86, Issue 5, pp. 783. To read the article, go to the announcement for February's speaker in the February 2001 newsletter at www.atmob.org. There is a link to the downloadable pdf file containing this *Physical Review Letters* article (<http://prl.aps.org/v86p783.html>).

At the business meeting the officers present gave their reports. Clubhouse Director JOHN REED announced that at the April 7th work party the snow should be thin enough to resume work on the observatory. A decision on how high to build the walls needs to be made. MARIO MOTTA reported to us that ATMob long-time friends JANET and MIKE MATTEI were recently honored with the naming of asteroid 11695 after them! Congratulations! That makes six asteroids now having names of club members past and present. (See article in this issue.) MARIO MOTTA gave an enthusiastic review of a new CCD book, "The Handbook of Astronomical Image Processing". The book comes with its own software. It costs \$79 and is available from Willman-Bell, Inc. NOREEN GRICE needs presenters for Astronomy Day (April 28) at the Boston Museum of Science. BERNIE VOLZ announced that not enough people signed up for the club's solar

eclipse trip to Africa. He is now planning to go on the one being run by Twilight Tours. See January's *Star Fields* for more information.

-Eileen Myers, Secretary-

Membership Report...

WE WARMLY welcome the following new members into our club: ALOIS MAIR from Cambridge, MIKE DENSMORE from Chelmsford, and HALDUN MENALI from Dorchester.

We now have 335 paid members.

-John Small, Membership Secretary-

Treasurer's Report...

FOR THE month of January, we had \$466.33 in revenue and \$1,638.93 in expenses for a net loss of \$1,172.60 for the month. As of January 31st, 2001 our assets were:

Checking Account - Regular	\$ 18,542.71
Investments	\$ 19,006.66
Total Current Assets	\$ 37,549.37

Of the total, \$2,245.46 is in the Land Fund and \$160.00 is for clubhouse key deposits.

-Bernie Volz, Treasurer-

Clubhouse Report...

SATURDAY OPEN CLUBHOUSE SCHEDULE

Mar 3	Lew Gramer	Dan Feldkhun
Mar 10	WORK	PARTY #3
Mar 10	Steve Herzberg	Richard Burrier
Mar 17	Paul Cicchetti	Jack Drobot
Mar 24	MESSIER	MARATHON #2
Mar 24	Steve Mock	John Reed
Mar 31	Henry Hopkinson	Jim Suslowicz
Apr 7	WORK	PARTY #4
Apr 7	David Prowten	Gary Walker
Apr 14	Art Swedlow	Tom Wolf
Apr 21	John Panaswich	John Small
Apr 28	ASTRONOMY DAY	BOSTON MUSEUM OF SCIENCE
Apr 28	Peter Psyhos	David Richardson

AT WORK PARTY #2 on February 10th, snow approximately two feet deep had to be cleared. MIKE MATTEI and BRUCE GERHARD replaced a belt on the club's snow blower. DAVE PROWTEN, who brought his own snow blower, reopened the observing field and the path to the 17". Using both blowers, Dave, Bruce, and Mike tackled the rest of the cleanup. The 17" pad was swept clear of water hourly until the thawing ceased. A future work party will add a circumferential drain around the 17" pad to keep ground water lower than the pad. Everyone had to race to finish since the wet slush was turning into hard frozen ice as the temperature dropped and the winds picked up. A crunchy icy surface was made available for safe observing.

Inside the clubhouse a large photograph display board was attached to the wall of the meeting room. JOHN REED primed this board, along with the bulletin boards over the windows. These boards will be used to display posters, photographs, etc. DAN FELDKHUN continued the clearing out of the upstairs electronics room, and installed shelving for equipment storage.

Later that evening Dan installed a free Internet service (BlueLight.com) on the club's computer. He wrote up instructions and posted them near the computer. The same wall switch used for outside telephone service needs to be on to activate the modem. When connected to the Internet, calls to the clubhouse will receive a busy signal. We request minimal Internet use. The Internet connection will be used primarily for times of satellite passage, water vapor maps to forecast our weather and other short information transfers. Primary communication to the clubhouse will be by voice mail (i.e. the telephone). DAVE PROWTEN continued to upgrade the Tom Cave mount to accept the club's Dall-Kirkham cassegrain.

CHEF JOHN provided the work party lunch, which was cooked on "Bernie's grill". Entertainment was provided by the Sun (sunspot monitoring), a flyover by the International Space Station with the docked Atlantis (before winking out the structure rivaled Rigel in brightness when viewed to the N.E.), and a magnitude -5 iridium flare, outshining nearby Venus (mag -4.1). Thanks RICH NUGENT for the heads up phone call. BRUCE GERHARD phoned later in the evening to verify that the clubhouse's atomic clock is accurate to within a second of the WWV radio time signal. The last workers left at 11 p.m.

Thank you DAN FELDKHUN, BRUCE GERHARD, MIKE MATTEI, MARIO MOTTA, EILEEN MYERS, DAVE PROWTEN, and JOHN REED.

-John Reed, Clubhouse Director-

Star Party Thank You's...

AT THE Rogers School in Lowell, BILL TOOMEY had another successful event. Thanks go to JACK DROBOT, JOE HENRY, ED LOS, PETE PSYHOS, and the still unnamed friend of John Small.

Thanks go to TOM CALDERWOOD and his team consisting of LOU COHEN, JOHN HOPKINS, DICK KOOLISH, and JOE MASTERS for helping out at the West Somerville Neighborhood School on January 29th.

Thanks go to STEVE HERZBERG and JOHN REED for helping out at the Woodland School in Weston. John saved the evening by continuing to show Jupiter through the clouds even though it was not visible to the naked eye.

-Rich Nugent, Observing Committee-

Upcoming Star Parties...

Friday, **March 2** (rain date March 9) Fiske School in Wellesley – contact Rich Nugent at NugentRP@aol.com

Tuesday, **March 6** (rain date March 7) Joshua Eaton School in Reading – contact Charlie McDonald at 781-944-6140.

Monday, **March 12** (rain date March 13) at the Newman School in Needham – contact Rich Nugent at NugentRP@aol.com Cathy Clemens is running this one, and is expecting at least 200 people. She could use a bit of help.

Tuesday, **March 20** McCarthy Middle School in Chelmsford near Rt. 3/Exit 32 – contact Bruce Berger at berger@mediaone.net. This is Bruce's first try at running a star party, and he would like some experienced help. He is expecting 80 participants, including teachers, students and family members.

Tuesday, **March 27** Birch Meadow School in Reading – Contact Charlie McDonald at 781-944-6140.

Monday, **April 2** Lowell – – contact Bill Toomey at bill@toomey.net. Bill Toomey has 5 astronomers but needs 2 more.

-Rich Nugent, Observing Committee-

April 28th is Astronomy Day at the Boston Museum of Science...

ANYONE WHO wants to talk about astronomy all day long should come on down to the Boston Museum of Science for Astronomy Day on **Saturday, April 28th**. We will need lots of help with our ATMob display, all-day mirror grinding demonstration, outdoor solar observing, and the evening star party on the museum roof. NOREEN GRICE ngrice@mos.org is looking for folks who would like to give a short talk to the public. There is always a huge turnout at the museum, and we all have a blast! Dinner at nearby Papa Razzi's with our group of 25+ members, family, and friends is great fun. Join us. Email me at NugentRP@aol.com or phone me at home.

-Rich Nugent, Observing Committee-

The Firefly Shuttle...

DID YOU notice the “firefly” effect of the Atlantis Space Shuttle on its trip up the East Coast? No, at 70 miles up it wasn't the shuttle going in and out of clouds. The “firefly” or blinking you observed was the orbital maneuvering system engine firing short bursts to maneuver the Shuttle away from the released fuel tank and to fine tune the Shuttle's trajectory. It was really moving pretty fast at that point, almost at its orbital velocity of 17,500 mph.

I used my 8” telescope at 60 power during another sighting of the Shuttle, this time while it was still docked with the International Space Station. I could clearly see the gold color of the ISS solar panel array. Its distinct t-shaped structure stood out. We can look forward to seeing more and more structure in our telescopes as the ISS is built over the next five years. March 8th is the next launch, but the launch time is 6:45 a.m. It may be too bright then to see the

Shuttle during the day, but I'm going to try. Look for it in the same spot as the last up the East Coast launch.

I have built a simple device which I now use with my telescope to be ready to track the Shuttle at night right after an up-the-East Coast launch. I align it with Polaris and then set it to the announced altitude and direction. If anyone is interested I will supply more details.

By the way, the clubhouse in Westford has a great view of the path of the up-the-East-Coast Shuttle launch. There is always a small group of a dozen or so folks watching from there.

-Rich Nugent, Observing Committee-

Do You Want to Visit the Hayden Planetarium in NYC?...

DID YOU miss the club's first bus trip to visit **the Hayden Planetarium and Rose Center for Earth and Space and the American Museum of Natural History in NYC**, or do you want to visit them again? EILEEN MYERS and MARSHA BOWMAN are starting to plan the next trip. **If you are at all interested in going** contact them. Forty-seven people in total are needed to fill the bus.

email Eileen at starleen@ma.ultranet.com or call 978-456-3937 or email Marsha rmbc2114@email.msn.com

Lowell Lectures on Astronomy at Boston Museum of Science...

THE 2001 LOWELL Lectures on Astronomy: “Kaboom! — The Dynamic Universe”, will be held on three Wednesdays: March 21, 28, and April 4, at 7:30 p.m. in the Cahners Theatre of the Boston Museum of Science. **Seating is free, first-come, first-served.** Tickets are available the night of the lecture beginning at 6:30 p.m. The lectures are presented in cooperation with the Harvard-Smithsonian Center for Astrophysics. For more information, call (617) 589-0270. There is an hourly rate to park at the museum.

Wednesday, **March 21** - *Supernovae and the Runaway Universe* Dr. Robert Kirshner, Harvard-Smithsonian Center for Astrophysics

Wednesday, **March 28** *The Big Bang* Dr. Alan Guth, MIT

Wednesday, **April 4** *Asteroids: Friends or Foes?* Dr. Richard Binzel, MIT

New Book on CCD Imaging...

WHAT I consider to be the finest book on CCD imaging, called “Astronomical Image Processing”, has been written by Richard Berry and published by Willmann-Bell. I have been doing CCD imaging now for the last 4 years since initially building a cookbook camera, and then advancing to an Apogee AM13. Along the way I have read and collected a number of books, manuals, and *Sky & Tel's* now defunct CCD magazine. I can say without reservation that this new book by Berry is superior to all of these combined. At 624 pages it is a lengthy manuscript that

covers every aspect of CCD images, from theory to acquisition to image processing, in a very readable and easy to understand format.

As a major bonus it even comes with its own full featured software AIP4WIN on a CD-ROM, that is every bit as good and in some ways better than commercial software (e.g., MaxIm CCD) costing many times the book alone. The book teaches you how, and the software can do such functions as astrometry, photometry, spectroscopy, image analysis, color imaging (tricolor), deconvolution, and Fourier transforms. It describes optimum pixel size and pros and cons of large versus small pixels, image calibration routines, types of image files (e.g. FITS) and relative merits of each, and various image processing techniques. In short, read this book and you will be an expert in the art of CCD imaging. For all those wanting to learn about image processing, thinking of getting a CCD camera, or have years of experience in the field of CCD's, I urge you to read this book.

-Mario Motta, MD-

(Editor's Note: Richard Berry will be conducting a Basic and an Advanced CCD Imaging workshop at the Northeast Astronomy Forum and Telescope Show in Suffern, NY on Saturday, May 5th, the first day of the now 2-day convention. Reservations for the workshops are required. See the club's "Astronomy Events Calendar for 2001" or www.rocklandastronomy.com for details.)

New Book on Mechanics...

ATMoB MEMBER GERRY SUSSMAN's book on mechanics is about to come out! MIT Press will publish it and it will appear around the middle of March. It is an approach to the study of classical mechanics, with an emphasis on nonlinear dynamical systems that uses computational methods to develop intellectual tools and to express concepts with precision. Amazon is already taking orders for it! Gerry is sure that some club members will be interested in it, since much of this material is the kind of thing that was used in the club's celestial mechanics class. The following is the advertising copy for the book. Congratulations, Gerry!

Structure and Interpretation of Classical Mechanics

By Gerald Jay Sussman and Jack Wisdom, with Meinhard E. Mayer

This book takes an innovative approach to the teaching of classical mechanics. The emphasis is to develop general-but-practical intellectual tools to support the analysis of nonlinear Hamiltonian systems. The development is organized around progressively more sophisticated analysis of particular natural systems, weaving these examples throughout the presentation. Phenomena such as transitions to chaos, nonlinear resonances, and resonance overlap are explored, and appropriate analytic tools for understanding are developed. Computational algorithms are used to communicate some of the methods used in the analysis of dynamical phenomena. Expressing the methods of mechanics in a computer language forces them to be unambiguous and computationally effective. Also, once formalized as a procedure, a mathematical idea becomes a tool that can be used directly to compute results. The student is directed to actively explore the motion of systems through computer simulation and experiment. This active exploration is extended to the mathematics. The

requirement that the computer be able to interpret any expression provides strict and immediate feedback as to whether an expression is correctly formulated. The interaction with the computer uncovers and corrects many deficiencies in understanding. Gerald Jay Sussman is the Matsushita Professor of Electrical Engineering in the Department of Electrical Engineering and Computer Science, and Jack Wisdom is Breene M. Kerr Professor of Planetary Science in the Department of Earth, Atmospheric, and Planetary Sciences, both at the Massachusetts Institute of Technology. Meinhard E. Mayer is Professor Emeritus of Physics and Mathematics at the University of California, Irvine. Gerald Jay Sussman is a co-author, with Hal Abelson and Julie Sussman of *Structure and Interpretation of Computer Programs* (MIT Press, second edition, 1996).

How to Name an Asteroid...

SIX PAST and current members of the ATMoB have asteroids named after them. They are JAMES G. BAKER, DENNIS di CICCIO, JANET and MIKE MATTEI, TAL MENTALL, and ROGER SINNOTT. Their names are included with the Beatles (John, Paul, George and Ringo), as well as Frank Zappa.

Michael A'Hearn is chairman of the International Astronomical Union's Small Bodies Names Committee, the committee which oversees the process of giving names to some of the nearly 12,000 such objects discovered to date. The first one was Mozart, and then Bach, Beethoven and Brahms followed some years after that. Brian G. Marsden, secretary of the naming group and an asteroid hunter himself, added Duke Ellington.

Only 60 percent of space rocks have gotten a name. How are the names decided? In most cases, the discoverer makes a suggestion - 16 characters (including any spaces or punctuation) or less and nothing offensive. No pets (Rover and Fido are deemed less worthy than Zappa and Ringo.) The suggested name, along with a brief defense of it, goes before the eleven-person naming committee, which has the final say. Politicians and military notables have to be dead a while to get their name on a space rock. Proposed names should preferably be one word, pronounceable (in some language), and not too similar to an existing name of a minor planet or natural planetary satellite. An alphabetical list of minor planet names is at

<http://cfa-www.harvard.edu/iau/lists/MPNames.html>

You'll find some interesting and amusing names there.

-Eileen Myers-

Telescope Making Information on the Internet...

ANYONE SERIOUSLY interested in telescope and mirror making should look at Mel Bartels home page at <http://zebu.uoregon.edu/~mbartels/scopes/scopes.html> and go on from there to other links in the Telescope Making Web Ring. The information now available on the Internet is quite extensive.

-Tom Lucia- ftlucia@aol.com

Laurel Highlands Star Cruise...

THIS INVITATION was sent to ATMoB by Terry N. Trees, Ph.D., Past President, Amateur Astronomers Association of

Pittsburgh Publicity Chair Laurel Highlands Star Cruise
TNTrees@BellAtlantic.net

THE MORE than 560 members of the Amateur Astronomy Association of Pittsburgh (Pennsylvania, USA) invite you to attend the third annual "Laurel Highlands Star Cruise", June 14 - 17, 2001. Star Cruise 2001 will be held at a new, darker site this year, the Pine Hill Campground, just off I-68 near Hazelton, West Virginia. Guest speakers from the Hubble Space Telescope Science Institute and the AAAP, among others; special activities; big telescopes; a food caterer, a swap table; and a fine selection of vendors are planned. This is a tremendous dark-sky site. Dark sky photos will soon be available on our Website for your perusal. Right now, the presentations appear to be centering around Solar System topics with Mars and NEAR being emphasized, but there is also a Hubble Update that will detail deep sky exploration. There are a lot of area attractions for the non-astronomer (detailed on our website), so bring the whole family. If you visit our website you'll see arrangements are still being finalized. But there's a ton of info there already. Hope to see you at Star Cruise 2001. A printable registration form and camping fees can be found at the Laurel Highlands Star Cruise Website:

<http://www.members.home.net/lhstarcruise/> Early registration (lower prices) ends on May 15. Individual registration is \$25 (\$30 later), camping \$8/day, but see the website for other details and family rates. AAAP Website: <http://www.3ap.org>

***Sky & Telescope's* Star Party Calendar on the Internet...**

INTERESTED IN going to an astronomy convention in another part of North America, or visiting one while you are on a business trip or visiting the relatives? Take a look at: <http://www.skypub.com/resources/calendar.shtml>.

It has a calendar of annual star parties and conventions held in the U.S. and Canada during the year. Thank you *Sky & Telescope* for this service.

Club History...

REMINDER: The club history is available for proofreading, comments, etc. Contact club secretary Eileen Myers at starleen@ma.ultranet.com for a copy.

ATTENTION

April *Star Fields* deadline is SUNDAY, April 1st
Email articles to *Star Fields* Editor / ATMoB Secretary

Eileen Myers at starleen@ma.ultranet.com

Articles from members are always welcome.

POSTMASTER NOTE: First Class Postage Mailed March 1, 2001

Amateur Telescope Makers of Boston, Inc.
c/o John Small, Membership Secretary
9 Bear Hill Terrace
Westford MA 01886-4225

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How to Find Us...Web Page www.atmob.org

MEETINGS: Held the second Thursday of each month (September to July) at 8:00PM in the Phillips Auditorium, Harvard-Smithsonian Center for Astrophysics, 60 Garden St., Cambridge MA. For INCLEMENT WEATHER CANCELLATION listen to WBZ (1030 AM)

CLUBHOUSE: Latitude 42° 36.5' N Longitude 71° 29.8' W

The Tom Britton Clubhouse is open every Saturday from 7 p.m. to late evening. It is the white farmhouse on the grounds of MIT's Haystack Observatory in Westford, MA. Take Rt. 3 North from Rt. 128 or Rt. 495 to Exit 33 and proceed West on Rt. 40 for five miles. Turn right at the MIT Lincoln Lab, Haystack Observatory at the Groton town line. Proceed to the farmhouse on left side of the road. Clubhouse attendance varies with the weather. It is wise to call in advance: (978) 692-8708.

Heads Up For March.. Subtract 5 from UT to get EST.

“March comes in as a lion, goes out like a lamb” - in the March evening sky Aries (The Ram) is setting as Leo (The Lion) approaches the zenith.

Venus at mag -4.6 on March 1, 36° above the setting Sun and setting 3 hours after sundown. March 30 - Venus sets at or just after sunset, 8° from the setting Sun. Starting March 25, look for a very slender Moon far to the left of Venus. For the next few days try to see Venus, which will appear as a thin crescent with horns pointing north, both before sunrise and after sunset on the same day, approx. 8°-9° from the setting and the rising Sun. Be careful not to aim your binoculars or telescope at the Sun. Venus's crescent phase grows larger in size but thinner. Venus grows in apparent size from 3/4 to 1 arcminute across, while the illuminated portion decreases from 20% on March 1 to about 1% on March 29.

Mars (mag +0.5) is 5.4° N of reddish Antares (mag 1), heart of Scorpius, on March 6 at dawn, and Mars (mag -0.2) will be 12° ENE of Antares by March 31. Antares means “Rival of Mars”.

Tues Mar 20 - Spring or Vernal Equinox.

Sun Apr 1 - Start of Daylight Savings Time - change clocks forward 1 hour.