



STAR FIELDS

NEWSLETTER OF THE AMATEUR TELESCOPE
MAKERS OF BOSTON

Vol. 4, No. 5

May 1993

OUR MAY MEETING...

Thursday, May 13, 1993, 8 p.m.
Phillips Auditorium, Harvard-Smithsonian
Center for Astrophysics

OPTICAL TESTING FOR AMATEUR TELESCOPE MAKERS is the topic of this month's talk by Scott Milligan and David Kelly. Scott and David will discuss and demonstrate mirror testing with particular emphasis on the knife-edge and Ronchi tests.

Scott Milligan is currently Secretary of the Springfield Telescope Makers. Scott has been a member of the ATMoB since 1983 and served for several years on the Executive Board. Scott is a lens designer for Telic Optics in Marlboro, MA. Scott, and his wife Liza, are currently busy building a house.

David Kelly is a member of the Springfield Telescope Makers and Springfield Stars (Springfield, MA). David is an optician for Liebmann Optics in Easthampton, MA and lives in Western Massachusetts.

Please join us at 5:45 p.m. for a pre-meeting dinner with our speaker at the Changsho Restaurant, 1712 Mass Avenue, Cambridge.

APRIL MEETING HIGHLIGHTS...

The April meeting was attended by some 51 members and guests. The usual reports were given with the secretary giving the financial report for the treasurer who was absent. Ed Dougherty reported on the clubhouse/observing committee formation and announced another solar orgy scheduled for June 5. John Reed announced that the optical tunnel would be disassembled and moved on April 10. Phil Rounseville asked for volunteers for a star party at Phillips Academy on April 27. Eric Reines brought to our attention an act to regulate night lighting in the Mass. legislature. Mario suggested that we all contact our representatives and indicate our support for the bill. He also described an observing session with our president that could have lead to the discovery of the supernova in M81 on March 28. It seems that M81 was next object to be observed, but Bernie insisted they should call it a night. Tai Mentall and Ed Dougherty were filmed at the clubhouse on April 5 for the WHDH-TV. Channel 7 Urban Update

show. Gary Walker and Mario Motta extended invitations to all ATMoB members to visit their new observatories in New Hampshire. Our speaker, Dr. Rudy Schild, gave a fascinating talk on how gravitational lenses are used to study the curvature of space-time. He also presented Bernie Volz with a narrated GCD ROM of deep sky images from the CfA.

HARVARD OBSERVATORY HAUNTED?...

Mario Motta brought the following passage from Dennis Overbye's book, *Lonely Hearts of the Cosmos*, (HarperCollins Publishers, 1991) to the attention of Bernie Volz and your editor. We thought you might find it interesting.

Some people say the Harvard College Observatory is haunted. The Harvard-Smithsonian Center for Astrophysics, of which it is now apart, is...a fifteen minute walk west from Harvard Square... The oldest part of the complex, including the original observatory, is a three-story U-shaped brick building on the crown of the hill... One wing of the old building houses an old library where colloquia are given every Thursday afternoon. The other side has a lobby hung with dusty astronomical photographs leading to a small planetarium; upstairs, in lonely, brassy splendor in an antique observing gallery, sits the historic Merz and Mahler 15-inch refractor, built in 1847. Its retirement survived a halfhearted and controversial attempt at modernization in the 1950s.

In a white dome the size of a small room on the observatory roof lives a 9-inch refractor made by the famed telescope makers Alvan Clark and Sons. This telescope gets used once a month on Thursday nights, when the public is let in, and anytime the junior staffers--college students and the local astronomy buffs who run tours and use the observatory for their amateur meetings--want to take a quick gander at something in the sky.

It's on dark nights like that, when the old creaking building is a labyrinth of shadows and drafts, and a countercultural air drafts over the hallways (and perhaps the acrid scent of marijuana as well), that someone is liable to wonder if they just saw a figure in nineteenth-century evening dress strolling out from the 15-inch or Was that a man in a trench coat over in the library stacks just a second ago?

One of the most popular ghosts, according to Stephen O'Meara, a Sky & Telescope staffer and observatory regular, was George Bond, son of the observatory's father, Henry Cranch Bond, and its second director, a lonely figure who died of consumption and pneumonia in 1865 after spending a winter in the unheated dome taking pictures of Orion. Bond was one of the fathers of celestial photography, but left no portraits or photographs behind of his own likeness. The aura of mystery around him was heightened by his rumored role in a suicide. According to the legend, Bond had been

the object of the attentions of a gay classmate named Edward Bromfield Phillips. When Bond rejected him, Phillips killed himself. The disappointed lover left all his money, naturally, to Harvard.

THINGS YOU MAY WANT TO KNOW...

A SPECIAL SKY AND LASER show will be presented at the Hayden Planetarium on Monday, May 10 at 7 p.m. courtesy of Darryl Davis of the planetarium staff and Dave Heustis, Skyscrappers, Inc. All ATMob members are invited to attend, but you must be there absolutely no later than 7 p.m. when the doors will close.

A VARIABLE STAR EVENING will be held at the clubhouse from 10 - 11 p.m. on Friday, May 14. Beginners are specially welcome. For last minute schedule changes, call 603-880-6219 and enter the code 52 at the start of the recorded message.

—Edward Los

CLUBHOUSE WORK DAY is scheduled for Saturday, May 15th. WE NEED YOUR HELP! We have lots of inside activities to do and, weather permitting, we'll also paint the outside. You are requested to arrive around 11:00 AM. PLEASE HELP OUT! Bring some food and drink!

—Bernie Volz

A SOLAR ALPHA-HYDROGEN ORGY and pot luck supper will be held at the clubhouse on Saturday, June 5. Come and set up your scopes at about 1 p.m. Call Steve Mock (617-625-5870) to coordinate what food to bring.

-- Ed Dougherty

AN ACT TO REGULATE NIGHT LIGHTING Fixtures and to Conserve Energy is a bill (H 3159) in the Massachusetts Legislature sponsored by Rep. Jim Marzilli and introduced by Paul Messerschmidt, Energy Innovations Group, 49 Hancock St., Boston, MA 02114-4132. Copies of the bill and information on its current status are available from Paul. His phone number is 617-695-9875.

—Eric Reines

THE ATMob SECRETARY position is open because Ted Poulos is retiring from the executive board. If anyone is interested in being a candidate for secretary, contact the nominating committee chairman, John Reed (617-861-8031). Even if your interest is in any of the other elected board positions either now or next Spring, let John know.

— Bernie Volz

A BABY BOY was born to Lynn and Bob Heller of Pepperell, MA on April 8. Austin becomes the Heller's second child.

BYRON E. DIX, an ATMob member, died on April 18, 1993. Byron was an optical engineer with advocations in astronomy and archeology. He helped develop the

idea of a mile long space gun as a method of launching earth orbiting satellites and gave a talk on this subject at ALCON '91. More recently, he designed telescopes used on the Shuttle for atmospheric research and for the Air Force's light detection and ranging system (LIDAR) at Hanscom Field. He was survived by his wife, Diane, and their two children.

—John Reed

A STAR PARTY will be held on Monday, May 24 for the Lynnfield Middle school starting at 7 p.m. (rain date, May 27). About 120 people are expected. If you can help out by bringing a telescope, call me at 617-334-3648.

—Mario Motta

A NOMINATING COMMITTEE consisting of John Reed (Chairman), Marion Hochull, and Gary Walker was elected at our April Meeting. They will present a slate of ATMob Executive Board candidates at our May meeting. The election will be held in June.

CLUBHOUSE LOCK has been changed. All members with the old key are requested to turn them in to Bernie Volz or Ed Dougherty. New keys will be issued only to Clubhouse/Observing Committee members.

NERAL '93 conference, hosted by the Springfield Stars, will be held on Saturday, June 5th at the Springfield Science Museum in Springfield, MA. Contact Richard Sanderson, 413-267-5283, for more information.

CLUBHOUSE ASSIGNMENTS...

The following members are responsible for clubhouse activities on the dates shown:

May 8 - Greg Chase, Phil Rounesville, John Reed

May 15 - Steve Mock, Mike Mattei, Bob Heller

May 22 - Art Swedlow, Bernie Volz, Fritz Ledford

May 29 - Bob Beckley, Vladimir Vulder, Gary Walker

June 5 - John Reed, Peter Bealo, Greg Chase

CLUBHOUSE DONATIONS...

Thanks to Tal Mentall for donating a recliner, and to Bernie Volz for donating a vacuum cleaner. We're looking for additional donations to the clubhouse, in particular a sump pump, cabinets (for the new kitchen area) and a microwave oven would be very useful.



ATMOb T-SHIRTS...

Heavy weight, 100% cotton, bright-colored T-Shirts with the ATMob logo can be ordered at our May meeting or by mail no later than May 14. If prepaid with order, the price is \$10 each or \$12 if mail delivery is desired. June delivery. All proceeds go to the ATMob treasury. Make any checks payable to the Amateur Telescope Makers of Boston, Inc.

—Ted Poulos

ATMoB ACTIVITIES...

TWO NEW HAMPSHIRE members, MIKE MROZ and JOHN STANSFIELD, have reached out to bring astronomy to young people. Mike gave a talk to the 5th grade of Main Dunstable Elementary School in Nashua on March 31. His material supplemented the class's science unit and included a discussion about the speed of light, distances in space, and the origin of the universe. John, for the 2nd consecutive year, is teaching a combined meteorology and astronomy enrichment course at the Sunset Heights Elementary School also in Nashua. He has a group of 4th thru 6th grade students who are interested in one or both subjects. Currently, John is teaching the course's astronomy half that includes 6 classroom sessions with one for solar observing. An evening telescope observing session scheduled for late May.

A MARBLEHEAD STAR PARTY for some 15 students of the Coffin Elementary School was conducted by ERIC REINS and MARIO MOTTA on the beautifully clear night of April 28. In addition to Eric's and Mario's 6 and 8-inch scopes, four others were set up by the Marblehead Star Gazers. The young people observed the moon and Jupiter and made sketches of what they saw.

OBSERVING AT THE CLUBHOUSE on Saturday, April 17 was reportedly superb. Some 30 ATM'ers and guests including David Huestis and his BMOS telescopic astronomy class were present. It didn't clear until about 5 p.m., but when it did it afforded great views of the eclipse of Jupiter's Io and deep sky objects like M81 and its new supernova.

THE OCCULTATION OF VENUS on Patriot's Day was probably observed by many members since it was sort of a holiday. MARION HOCHULI and ED DOUGHERTY viewed the event from Ed's observatory in Dracut. Ed also captured a video of it. TED POULOS observed the occultation with his C8 in his backyard observatory. Ted used S&T's suggestion for finding Venus; namely, adjusting the scope position for a round shadow and then moving west 1 h 43 m and 5.8° south. He found the planet immediately. DICK KOOLISH, JOHN REED, and STEVE MOCK viewed the occultation using the C14 at Bentley College.

MEETING REFRESHMENTS at our April meeting were provided thanks to GARY WALKER. MARION HOCHULI will do us the honors at our May meeting.

FIRST OF THE ATMoB LOANER TELESCOPES has gone out to Al Pisano and his daughter. It is a 6-inch, f/8, Newtonian. A second 8-inch, f/8 is available. Both scopes are equatorial mounted and equipped with a Telrad and eyepieces. For more information, call me, 508-458-8857. --Ed Dougherty

THANKS TO JOHN REED, PAUL CICCHETTI, KEN LAUNIE, ED DOUGERTY, and others for all the work they've been doing at the clubhouse--the optical test tunnel has been moved to its new home (and also

received a new coat of paint), the sinks have been moved, and more ... If you haven't visited in a while, try to soon (we'd love to see you, especially on Saturday, May 15th). Also, thanks to ANNA HILLIER and BERNIE VOLZ for vacuuming the clubhouse (it was way overdue).

EYEPIECE MISCELLANY... by Kevin McCarthy

To utilize all of a telescope aperture, we must be careful not to 'overflow' our dark-adapted pupils by using too low a magnification. Since the exit pupil is simply the ratio of the telescope diameter to its magnification, and the latter is a function of both telescope and eyepiece focal length. We can prepare a simple rule: the maximum eyepiece focal length (F.L.E.) should be equal to or less than the f/ratio times the exit pupil; for a representative dark adapted pupil of 7 mm, $F.L.E. \leq f/ratio \times 7$. This limits f/4 systems to 28 mm eyepiece; f/6 - 42 mm; f/8 - 56 mm; f/12 - 84 mm, and f/16 - 112 mm. Clearly, long focal length eyepieces are out of place on fast Newtonians, where they can halve the aperture while doubling the central obstruction.

On slower systems, where longer focal length eyepieces can be considered, another limit is encountered--the clear aperture of the eyepiece. On nominal 2" eyepieces, this will not exceed 1.8", or 46 mm. The true field, in radians, is just this value divided by the telescope's focal length; in degrees, it's: $T.F. = 57.3 \times 46/F.L.E. (mm)$. The apparent (eyepiece) field is therefore limited to $A.F. \leq 57.3 \times 46/F.L.E. (mm)$. This reveals that a 2" O.D. eyepiece of 55 mm focal length is limited to an apparent field of 48°; conversely, the longest focal length of a true 65° eyepiece is 40 mm. Manufacturers regularly skirt (or even ignore) this simple restriction on their claims. On an f/8 system, such a 40 mm eyepiece (if well corrected), will yield sharper imagery with its 5 mm exit pupil than a pupil-filling (or overflowing) longer focal length eyepiece, while showing just as much sky. On much slower systems, such as f/12 to f/16 compound telescopes, a case can be made for 'richest field' eyepieces of 70 - 110 mm, with accordingly larger 3" to 4" barrels to avoid the above apparent and true field restrictions.

MARKETPLACE...

WANTED Roommate to share large new house with panoramic view of the sky and no street lights. Estate with many extras: deck, jacuzzi, etc. Large telescopes welcome. 508-663-9585.

OBSERVER'S CALENDAR...

May Supernova 1993J, 11.5 mag. in M81

May 12 Mars in Beehive cluster, M44.

May 15 Jupiter's red spot on meridian, 10:31 EDT.
Other times: May 17, 12:09; 18, 8:00; 19, 9:39; 21, 11:17; 24, 8:47; 26, 10:26; 29, 12:04; 31, 9:34; Jun 2, 11:17; 5, 8:47; 7, 10:26; 9, 12:09; 12, 9:31.

May 22 Very young moon in west.



FOR SALE 36 Model Rockets, half of them assembled, with 2 launch pads and controls, and enough materials to launch 20 times. No license required. Tackle box included. \$200 or best offer. Dave Aucoin, 617-891-9650.

FOR SALE Celestron 8-inch SCT. Top optical quality and hard-coated corrector. 4 eyepieces, wedge, steel tripod, AC/DC drive corrector, camera T-mount, E.P. proj. tube, and Star Atlas. \$975. 617-272-8946.

FOR SALE Telephoto/Telescope, catadioptric 500 mm, 1/8 T-mount with tripod adapter and eyepiece. Similar to Russian Mak. \$95. 617-272-8946.

COMING EVENTS...

- May 10 SKY & LASER SHOW at Planetarium
(see page 3).
- May 14 VARIABLE STAR EVENING at the
clubhouse (see page 3).
- May 15 ATMob CLUBHOUSE WORK SESSION
(see page 3).

EXECUTIVE BOARD 1992-93...

- PRESIDENT: Bernard Volz, 508-881-3614
- VICE PRESIDENT: Mario Motta, 617-334-3648
- SECRETARY: Ted J. Poulos, 617-566-5127
- MEMBERSHIP SEC: John Samolyk, 617-391-9290
- TREASURER: Anthony Costanzo, 508-521-5382
- MEMBERS AT LARGE: Peter Bealo, 603-382-7039
Anna Hillier, 617-861-8338
- PAST PRESIDENTS: 1990-92 Marlon Hochull
1989-90 David Aucoin
1987-89 Gary Walker

COMMITTEES...

- OBSERVING: Edward Dougherty, 508-458-8857
- CLUBHOUSE: -- Open --

FIRST CLASS

- May 20 CIA MONTHLY OBSERVATORY NIGHTS, "Starbirth: Family Affair" by Elizabeth Lada, 8 p.m., Phillips Auditorium, CIA, Cambridge, MA. For more info call 617-495-7461.
- Jun. 5 SOLAR ORGY at the clubhouse.
- Thru '93 ORION RENDEZVOUS: A STAR TREK VOYAGE OF DISCOVERY, Hayden Planetarium, For more info call 617-723-2500.

JUNE STAR FIELDS DEADLINE...

May 26th is the deadline for items to be included in the June issue of *STAR FIELDS*. Mail or phone your contribution to Ted Poulos, 18 Cushing Rd., Brookline, MA 02146 (617-566-5127).

HOW TO FIND US...

MEETINGS: Held the second Thursday of each month (September to July) at 8 p.m. in Phillips Auditorium, Harvard-Smithsonian Center for Astrophysics, 60 Garden St., Cambridge, MA. Parking available on the grounds.

CLUBHOUSE: The Tom Britton clubhouse is open every Saturday from mid-afternoon 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 495 to exit 33 and proceed west on Rt. 40 for 5 miles. Turn right at the MIT Lincoln Lab, Haystack Observatory sign at the Groton town line. Proceed to the farmhouse on the left side of the road. Since clubhouse attendance varies with the weather and other activities, it is wise to call ahead: 508-692-8708.

AMATEUR TELESCOPE MAKERS OF BOSTON
c/o John Samolyk
65 Court Street
Medford, MA 02155