



STAR FIELDS

NEWSLETTER OF THE AMATEUR TELESCOPE
MAKERS OF BOSTON

Vol. 4, No. 3

March 1993

OUR MARCH MEETING...

Thursday, March 11, 1993, 8 p.m.
Phillips Auditorium, Harvard-Smithsonian
Center for Astrophysics

THE CHAOTIC MOTION OF THE SOLAR SYSTEM is the title of this month's talk by MIT Professor and ATMoB member, Dr. Gerald J. Sussman. Dr. Sussman is the Matsushita Professor of Electrical Engineering at MIT. He has been involved in artificial intelligence research there since 1964. He spent the 1983-84 academic year in Theoretical Astrophysics Group at Caltech learning about dynamical astrophysics. While there, he was the principal designer of the Digital Orrery, a machine designed to do high-precision integrations for orbital mechanics experiments. Using the Digital Orrery, Dr. Sussman and Jack Wisdom discovered numerical evidence for chaotic motions in the outer planets (see Planets in Chaos, S&T, Feb. '93, p. 13).

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

FEBRUARY MEETING HIGHLIGHTS...

Our February meeting was attended by some 45 members and guests. The Treasurer was absent, John Reed gave the clubhouse report for absent Observing Committee Chairman. He indicated that clubhouse attendance in January was particularly high with some 71 individuals signing in. John Samolyk advised us that our current membership stands at 277. The President announced that MIT has extended our clubhouse lease for another five years. He also asked for volunteers to sign-up for the UMass astronomy convention on March 27th. Mario Motta drew our attention to a March S&T article describing the availability of Mars images on 6 CD ROMS. Our speaker Dr. Henry M. Pollock III described the functioning of the eye particularly as it is related to night vision.

FIREPOND ON THE HILL...

A dozen or so members who braved a very cold Saturday to visit the clubhouse on February 6th were treated to a tour of MIT's Firepond research center just

up the hill from the clubhouse. Larry Swezey who is in charge of Firepond operations conducted the tour. According to ATM'er Mike Mattel who fabricates optics for the facility, two research programs are conducted there. One involves optical radar imaging and the other is exploring the use of adaptive optics in astronomy. The latter project's principle goal is to investigate whether these systems can be used to identify planets and planetary systems forming around other stars. Adaptive optics works by measuring the distorting effects of the atmosphere on the light of a guide star and adjusting a deformable mirror to conjugate the effects. In particular, the research involves the use of laser beams to create one or more artificial beacons in the sky to act as guide stars. Julius Feinleib of Adaptive Optics Association in Cambridge suggested this laser guide star idea back in 1981. His idea was to focus a laser in the lower atmosphere (4 to 10 km altitude). The beam is scattered by nitrogen and oxygen molecules creating an artificial beacon that can be placed anywhere in the sky.

Lincoln Lab's Firepond group has been working with a laser tuned to the 589 nm sodium line and directed to the mesospheric atomic sodium layer that exists at an altitude of 90-100 km. In August of 1988, the group observed the first magnitude star Procyon in the visible and obtained a factor of 10 image improvement over uncompensated images. According to an article in Physics Today (Feb. '92), The Lincoln Lab researchers have developed a very compact solid-state laser system specifically for producing sodium layer beacons. The group uses one of these sodium illuminators with a Firepond 48-inch telescope fitted with adaptive optics.

THINGS YOU MAY WANT TO KNOW...

THE ANNUAL LOWELL LECTURE series at the Boston Museum of Science will be held on Wednesday evenings at 7:30 p.m. on the following dates:

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| Mar. 31 | Sky Wonders: Rainbows, Haloes, and Glories by Ken Brecher |
| Apr. 7 | Sky Fire: Aurorae and Atmospheric by Robert Eather |
| Apr. 14 | Sky Wanderers: Comets and Asteroids by David Levy |
| Apr. 28 | Sky Bright: Daytime Astronomy by Sallie Ballunas |
| May 5 | Sky Stones: Meteorites and Meteoritics by Ursula Marvin |

Tickets for the lectures are free, but must be requested in advance by sending a S.A.S.E. to Lowell Astronomy Lectures, Hayden Planetarium, Science Park, Boston, MA 02114-1099. There is a limit of four (4) tickets per lecture. Requests for more than three (3) tickets per lecture require double postage.

DOUBLE STAR OBSERVER is a new newsletter for those who enjoy observing double stars. It is published by ATM'er Ron Tanguay. For a free copy of Issue #1,

write Double Star Observer, c/o Ronald C. Tanguay, 306 Reynolds Dr., Saugus, MA 01906.

DAVID LEVY'S new book "Clyde Tombaugh: Discoverer of Planet Pluto" autographed by both David and Clyde, is being made available to interested members for \$15. Send me a check or pay me at the March meeting. I'll place the order a few days after the meeting. My address is: 73 Sudbury Rd., Ashland, MA 01721.

--Bernie Volz

THANK YOU MIT for extending the lease on the Haystack Farmhouse (our Tom Britton Clubhouse) for another 5 years. The ATMob Executive Board and membership deeply appreciate your generosity.

RADIO STATION WUMB of UMass, Boston is sponsoring an astronomy conference entitled "Luminary Celebration" on Saturday, March 27th starting at 10 a.m. They need our help in: presenting short talks on amateur astronomy, demonstrating mirror and telescope making, manning a display table, conducting solar observing and providing an evening star party. Mark your calendar and plan to volunteer your assistance!

--Bernie Volz

THE ASTRONOMY MAGAZINES stored at the clubhouse will be discarded after March 13. Any members who want copies may take them free of charge before that date. This does not apply to photos or star charts which still must be purchased.

--Executive Board

ATMoB ACTIVITIES...

THE TRAPEZIUM ECLIPSE of February 14 was observed by JOHN REED and STEVE MOCK using the C-14 at Bentley College Observatory in Waltham. The normally 6.5 magnitude A component of Trapezium (Theta Orionis) is an eclipsing binary that dims by 1.5 magnitude every 65.43 days. After having observed both Mercury and Venus, our ATM'ers stumbled on to a reference to the eclipse in S&T and were in the right place at the right time to observe it. ED DOUGHERTY recorded the event photometrically at his observatory using a Meade 11" SCT equipped with a dual 1P21 PMT photometer that was normally used for autotracking. Ed plotted a light curve which unfortunately did not reproduce well enough to be included here.

A VARIABLE STAR EVENING will be held at the clubhouse from 7:30-9:30 p.m. on Friday, March 19. For last minute schedule changes, call 603-880-6219 and

CLUBHOUSE WORK SESSIONS...

Saturday, March 13, 1 p.m. Task: Move the optical test tunnel to its new location.

Saturday, March 27, 1 p.m. Task: Install sheet rock on walls of the new evaporator room.

Please come to the clubhouse on one or both of these days to help out!

enter the code 52 at the start of the recorded message.
--Edward Los

MESSIER MARATHON will take place at our Tom Britton clubhouse also on Friday, March 19 with cloud dates of March 20, 26, or 27. Be prepared to start setting up scopes at 6 p.m. For additional details and lists of objects, call the marathon coordinator STEVE MOCK at 617-625-5870. Certificates will be awarded.

THE STAR PARTY at the Killam School in Reading on February 27 was a great success. A good, cold and clear night brought out seven ATM'ers and their scopes: JOHN SAMOLYK, VINCENT MARCELLINO, KEN FYE, TIM FLYNN, CHARLIE McDONALD, ED LOS, and MARIO MOTTA. Venus, the moon, and M42 were some of the objects the 60-80 students and their parents observed. A special thanks to Charlie for providing fact sheet handouts for the event.

FUNDS NEEDED. The club's treasury has been taken some real hits of late because of the cost of liability insurance, the \$1500 in expenses to refurbish the clubhouse, and other expenses. Members are encouraged to make tax exempt donations to the club. Also when making or revising your will, consider a bequest to the ATMob to assure that others to come will have the opportunity to experience the same pleasure you have had as an ATMob member and as part of amateur astronomy in New England. Send contributions to our Treasurer, Tony Costanzo at 61 South Kimbal St., Bradford, MA 01835.

CLUBHOUSE DONATIONS. Thanks to TAL MENTALL for donating two 25 ft. lengths of heating tape to the clubhouse. Our cold pipes will appreciate it! Tal also donated the \$5.00 for our clubhouse rental payment to MIT. Also many thanks to PETER BEALO for giving us 12 sheets of sheet rock that will be well used in constructing the vacuum evaporator room.

MIKE MATTEI has begun the making of a 16-inch, f/4.2 mirror that he plans to configure as a Dobsonian on an equatorial platform. He currently observes with a 10-inch Schupmann housed in nearly completed 16 ft. square observatory fitted with a half cylinder 'dome'.

ANY ADVICE OUT THERE. ATM'er John Willett (617-674-2664) writes "I have been frustrated in finding a wide-field (65° or greater), low-power (35-40 mm) eyepiece that meets my needs. My problem seems to

The face of God

I never behold [the heavens filled with stars] that I do not feel I am looking in the face of God. I can see how it might be possible for a man to look down on the earth and be an atheist, but I cannot conceive how he could look up into the heavens and say there is no God.

--Abraham Lincoln

Contributed by E. Tal Mentall

be a narrow range of accommodation, resulting from far-sightedness... I wonder if anyone in the club who has been down this road can give me any advice.

Recently, I purchased a Tele Vue 35 mm 'Panoptic'.

Although I found that this remarkable eyepiece can be focused to extreme sharpness, even at the edge of its 68° apparent field, my eye could not accommodate its field curvature on either my Tele Vue Genesis or Ultima-11. Since nearly half of the field of view appeared blurred at any position of the focuser, I regretfully returned the eyepiece. Some time ago I tried Meade's 40 mm 'Super Wide' on the U-11, but found it unacceptably un-sharp over much of its field. The Backyard Astronomer's Guide, 1991 highly recommends University Optics' new, seven-element, 40 mm 'Konig', but I have not tried it. Are there any other options in this category."

KUDOS TO PAUL CICHETTI, JOHN REED and DAVID AUCOIN for digging four 24-inch deep holes in the ground under the clubhouse's old kitchen floor so that concrete pillars can be poured to support the optical test tunnel. Call John at 617-861-8031 if you can assist in mixing and pouring the concrete.

ANYONE TRAVELING TO MICHIGAN (between Flint and Saganaw) this spring or summer and would like to help out a young amateur astronomer please contact Tim Solinski, P.O. Box 49, Birch Run, MI 48415 (517-624-5298). When Tim left this area, he unfortunately had to leave his 10-inch Dobsonian in Quincy, but would now love to have it to use in those dark Michigan skies. --John Reed

AN EXECUTIVE BOARD MEETING was held Wednesday, Feb. 24 at Marlo Motta's home. All board members were present except Anna Hillier and Gary Walker. Actions taken by the board were: ● Set the 1993-94 membership dues to \$20 ● Approved functions and responsibilities of clubhouse committee ● Approved an additional expenditure of \$250 for clubhouse repairs ● Authorized the discarding of the clubhouse S&T and Astrophysical Journals after March 13 ● Approved making loaner telescopes available for a fee of \$5 ● Approved the refurbishing of the 16-inch scope by P. Bealo and T. Costanzo.

MEETING REFRESHMENTS each month are the responsibility of an Executive Board member. In February it was TED POULOS and at our March meeting it will be BERNIE VOLZ.

ATMoB MEMBER PROFILE...

PAUL CICHETTI, a mechanical engineer and a major in the US Air Force stationed at Hanscom, hails originally from New Jersey, but during his military career as lived in California and Ohio. Although Paul has only been an ATMoB member a short time, he has been an active one by having participated in ALCON '91 and more recently in the efforts to refurbish the clubhouse. His interest in astronomy started some 20 years ago as a teenager when he bought his first 2.4-inch altazimuth

mounted refractor. He has been a refractor man ever since after having briefly tried using a 8-inch SCT. Paul now owns two APO refractors: a 4-inch f/7 and a 6-inch, F/9 which he used his mechanical engineering talents to build. Lunar, planetary, and more recently solar observing are Paul's chief interests. He has coupled this with a talent for drawing to produce some excellent sketches of the moon, planets, and sunspots. When making his drawings using the 6-inch housed in a roof-off observatory in his backyard, he spends about an hour at the eyepiece roughing in the object he is drawing. He then uses a 10-step number scale to add numbers to the drawing to indicate gray scale density. Then later from memory and the numbers, he fills in and shades the drawing. Paul's air force work is somewhat astronomically related. He is project manager of SEON--Solar Electro-Optical Network which monitors the sun in both the optical and radio spectrum.

MARKETPLACE...

WANTED 13 mm Nagler eyepiece (with rubber eyeguard) in exchange for my 12 mm Nagler II (excellent condition). I propose a temporary swap for evaluation, to be made permanent if mutually satisfied. John Willett, 617-674-2664.

FOR SALE 11 mm Nagler eyepiece, mint condition, \$165. Novak 2" R&P focuser, flat base, \$75. Celestron C65: 65 mm aperture, 815 mm fl; 22 mm eyepiece and vinyl case, rarely used and in excellent condition, \$75. Lumicon H-Beta filter, 1-1/4", \$50. Ken Fye, 617-353-4120 (days), 527-9161 (evenings).

FOR SALE 10", f/10 Galaxy mirror with enhanced coating and Novak cell, 2-1/4" cervit diagonal, curved spider diagonal holder, 2" short Novak R&P focuser. Lot price \$600 or best offer. Steve Mock, 617-625-5870.

FOR SALE Original Meade Model 2120, 10", f/10 SCT with 8x50 finder, wedge and tripod, excellent condition. Includes moto-focus, moto-dec, full aperture glass solar filter, ATI GAT installed, but never used, star diagonal, Meade orthoscopic eyepieces 6 and 12.5 mm, off-axis guider, piggy-back camera mount, and counter weight set. Price \$1800, Tal Mentali, 617-598-0766.

FOR SALE Brand new never used HP 7475A graphics plotter with 5 pens. HP-IB interface. Price \$400, Tal Mentali, 617-598-0766.

FOR SALE PC compatible computer system, 386DX, 25 MHz with math coprocessor, tower case, 8 MB RAM,

OBSERVER'S CALENDAR...

Mar. 8 MOON at perigee--the closest Full Moon of 1993.

Mar. 15-31 DARK-SKY observing window for the month.

Mar. 30 JUPITER at opposition (rises at sunset).

Apr. 19 DAYLIGHT VENUS OCCULTATION some 26° from the sun near midday (see April issues of S&T and Astronomy)

64K high speed cache, Video & 1024i VGA adapter, 12" NEC MultiSync color monitor, Teac 3.5", 1.4 MB floppy drive, 2 half height 80 MB hard drives, parallel and 2 serial ports. High quality AMI Mark II motherboard. \$950 or best offer. Carl Hein, 508-263-0076.

COMING EVENTS...

- Mar. 10 OPEN NIGHT AT THE BU OBSERVATORY, "Expanding Our Galactic Horizons: BU-Arecibo Hydrogen Survey" by Robert Yantosca, 7:30 p.m., Rm 522, 725 Commonwealth Ave., Boston. Call 617-353-2630 after 5:30 p.m.
- Mar. 13 CLUBHOUSE WORK SESSION, 1 p.m. (see p. 2).
- Mar. 19 MESSIER MARATHON and VARIABLE STAR EVENING at the ATMob Tom Britton

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

clubhouse (see p. 2).

- Mar. 18 CfA MONTHLY OBSERVATORY NIGHTS, "Exploring the Cosmos: Observatory Hill in the 19th Century" by Barbara Weither, 8 p.m., Phillips Auditorium, CfA, Cambridge, MA. For more info call 617-495-7461.
- Mar. 27 CLUBHOUSE WORK SESSION, 1 p.m. (see p. 2).

APRIL STAR FIELDS DEADLINE...

March 31st is the deadline for items to be included in the April 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