

Northwest Skies

The Official Newsletter of the Tacoma Astronomical Society
Tacoma, Washington State, USA

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73 Years of Amateur Astronomy in the Pacific Northwest

May—June 2004

The President's Message

by Matt Flood



Some good weather has finally graced us at our public nights and the crowds have been rewarded with good viewing. Mercury, Venus, Mars, Saturn and Jupiter have all put on a good show. We have had groups of students from Lakes High School, Paul Hines' students from Pierce College and scouting groups recently. A special show, live via NASA and Pierce College, for the June 8th transit of Venus is in the planning stage. Check the website shortly for more info.

I'm often pleasantly surprised by the hard work and dedication of our members. Just when it seems like something won't get done or we're getting stagnant, someone pops up to start a new project or finish an old one. Three people I'd like to mention and thank.

Bill Briggs has taken the lead in rebuilding our sixteen inch Meade mirror into a tele-

scope (see article in this newsletter). He needs additional quality parts to keep our costs down. If you have any spare parts; a focuser, a diagonal, eyepieces, etc., which may be suitable let us know.

Gwen Grace has taken on the task, with help from others of reviving a dark sky viewing site. Possible sites (Slavens Star Haven among others) and scheduling have been discussed. Contact Gwen or post ideas on the website if you are interested in viewing or helping. Gwen is also leading a visit to the Bonney Lake Skystone (subject of our May general meeting) on June 5th. Details to come.

Howard Kim, recently started taking his scope to Ruston Way in Tacoma for viewing. Next thing you know, a crowd has gathered and he is really charged up. The result; he has arranged with the Safeway store on North Pearl St., as well as Ruston Way, for viewing. Tacoma now has star parties. Way to go Howard! Tacomans, get on his call list by making contact with Howard or myself and we will really get it going!

Condolences go out to long time member, past trustee and good friend Leo Romo on the recent death of his wife. Leo has been a joy to be around and a dedicated hard working member ever since, and I suspect long before, I ever joined this club. Our prayers are with you Leo.

Table Mountain Star Party sign ups will begin May 1st on their website, www.TMSPA.com. If you have never attended before, sign up early as there have been limits to the number of attendees discussed again this year. This is the "big one" of star parties. TAS will have our area again hopefully. Ask any member who has been before about all the fun stuff to do (Matt and Erin's routine; bowling, swimming, movie, dinner in Ellensburg then viewing at night).

Upcoming events, August 7th, AstroFair and Puyallup Fair, September 10th through 26th. Please be sure to sign up early to help out with these very important annual TAS events!

Hope you all have clear skies!
Matt

Northwest Skies is a bi-monthly publication of the Tacoma Astronomical Society. All opinions expressed in this newsletter are those of the contributors and not necessarily those of the Tacoma Astronomical Society. Personal advertising is accepted without charge from members in good standing.

Article contributions are strongly encouraged and may be submitted as an email attachment to

editor@tas-online.org

People to Contact

You can also contact us via email through our website at:

www.tas-online.org

Our mailing address is:

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Our regular columnist, Bert Brown, summarizes the articles in the current edition of CalTech's Division of Physics, Mathematics and Astronomy newsletter; 'PMA Communiqué'.

What's Up In Astronomy

by Bert Brown

"PMA Communiqué" is a newsletter from the Division of Physics, Mathematics and Astronomy at the California Institute of Technology (Caltech.) The latest issue (No. 5, Winter 2004) is devoted to astronomy research at Caltech. Following is a summary of some of the reports:

The Hubble instrument is not the only telescope in orbit; there are several smaller ones churning out information. One such is the "Galaxy Evolution Explorer" (GALEX), a 50-cm telescope that gathers ultraviolet (UV) images to study the evolution of distant galaxies. The Hubble telescope has shown that galaxies in early stages of formation are quite different from later ones such as our own. The GALEX UV studies will single out galaxies dominated by hot, short-lived stars, at

varying distances from us (and therefore varying ages). For additional info on GALEX visit the website www.galex.caltech.edu

Caltech has been involved with a number of sky surveys over the years, starting with the Palomar Sky Survey (a ground-based project) and continuing with the Two-Micron Sky Survey (TMSS, about 1968), the 12-to-100 micron IRAS survey (1983) and most recently the 2-Micron All-Sky Survey (2MASS, 2003). A new survey planned for launching in 2008 is the Wide-Area Infrared Survey Explorer (WISE), which will use a 50-cm telescope in a two-stage solid-hydrogen cryostat to cool detectors and optics. It will be in a 500-km Sun-synchronous polar orbit, like the IRAS project. WISE is expected to find the most luminous galaxies, the clos-

est dim stars to the sun, and detect most main-belt asteroids larger than 3 km. The cryogenic lifetime is expected to be about 6 months. This project is being funded by NASA and is still in the development stage.

Gamma Ray Bursts (GRB) have been discussed in this column previously: April and May issues, 1998; and March-April issue of 2000. These things are intrinsically the brightest explosions in the sky, but they fade rapidly, and the problem has been to locate and study them while they are still "hot." Caltech and Carnegie astrophysicists Fritz Zwicky and Walter Baade had pioneered the study of supernovae in the 1940s and beyond; these are the explosions of massive stars which have used all their hydrogen fuel and subse-

quently collapse into white dwarfs, neutron stars or (for the largest ones) black holes. It is now believed that the black holes may power the GRBs. This June NASA will launch the Swift Explorer mission to study cosmic explosions. The Palomar 60-inch telescope has been automated to respond rapidly to GRBs detected by the Swift mission. GRBs may also be of interest to those studying neutrinos and gravitational waves--both topics of previous columns here. X-Ray Flashes (XRFs) are another class of cosmic explosion which can be studied by the Swift mission and the Palomar 60-inch telescope.

Last time, in our column on Mauna Kea in Hawaii, we

mentioned that a 30-meter telescope is being planned--and that Mauna Kea was one of the possible sites. Caltech is one of the institutions that is doing the planning--the others being U. of California, The Association of Universities for Research in Astronomy (AURA) and ACURA, its Canadian counterpart. AURA operates most of the US national observatories. S. George Djorgovski, who contributed the report in PMA Communiqué, is in charge of Caltech's part in determining a site for the Thirty Meter Telescope (TMT). Present leading contenders for the TMT site are Mauna Kea, northern Chile, W/SW USA, and northern Mexico. While climate conditions and seeing quality are para-

mount, environmental, political and ethnic considerations also figure in. They need a site that is not near places that are developed, or likely to be developed, to produce light pollution. High, arid remote plateaus seem best. While most proposed sites are in geologically active areas (i.e., earthquake zones), it is possible to design the facilities to withstand that hazard. Caltech will be building 6 or 7 mini-observatories, fully automated, using 30 cm telescopes and complete weather stations for testing remote sites the next couple of years.

More Caltech reports next time!

The Club Telescope

Early last Saturday I received a call from Bill Briggs who was going to head over to Chuck Jacobson's home to work on the 16" club mirror. Asking if I may join them I hurriedly printed off a map of Puyallup and headed out on the road. I was excited to actually have a chance to see progress on the mirror which Bill and Nate Andrews have been working on for a few months. The mirror will eventually become the major component in the Tacoma Astronomical Society's

own 16" Dobsonian reflector.

The mirror was donated to the Society awhile ago by Jerry Cotey. It was originally purchased from Meade and then mounted in an older 'blue behemoth' scope that had fallen into disuse. At some point the secondary mirror had come loose and fallen onto the primary which undoubtedly explains the deep 1" scratch about 4" from the center. When Bill made enquiries about the impact such a scratch

would make on the image quality we were informed that such a scratch would not degrade the optics that much, perhaps comparable to the degradation caused by the spider fins used for mounting a secondary. Greatly encouraged by this Bill has been leading the effort in restoring the mirror with the goal of building a telescope for the Society.

Arriving at Chuck's house I found that Bill and Chuck had already mounted the mirror in a

Continued over page

Editor's Erratum

It has recently been brought to my attention that there may have been some confusion caused by the previous edition of the newsletter regarding the deadline for membership renewals. In the previous edition of the newsletter the stated date of March 1st was given as the deadline for the membership dues. This was in error.

To clarify, all members are expected to renew their subscriptions on January 1st. However, we do keep all membership records active until March 15th at which point those memberships left unpaid are marked inactive with the consequential loss of membership benefits.

Receipt of membership dues past this date results in the reactivation of the membership record and the reinstatement of membership benefits.

Thank you.



Snacks for the General Meeting

The following good people have volunteered to bring cookies or other snacks to our upcoming general meetings:

May

Bob Isaacs

Craig Calhoun

June

Leo Romo

Richard Carrier

Mary Jordan

Thank you for making our meetings more enjoyable.



strap cradle and had determined where it's focal point was. At the focal point, half away across the garage from the work bench, Chuck had set up a small working table from which we would conduct our tests.

The mirror, shown opposite, was recoated by Al Misuik, whom regular attendees of the General Meeting will recall gave a presentation and slide show back in October 2003 about his company, Sirius Optics, and the work they do. Bill had already stripped much of the original aluminum coating with ferric chloride when he took the mirror into Sirius Optics for final stripping and re-coating of the mirror. Al Misuik gave the mirror a silver coating consisting of a layer of chromium (to aid adhesion for the silver), then the silver layer itself, and then followed with a final laminate of magnesium fluoride and silicon dioxide.

The first test we conducted on the mirror was a Ronchi test designed to reveal the contour of the mirror's parabolic curve. The test itself is an easy one to conduct and reveals much about the mirror's curvature. However, the test is also revealing to those who

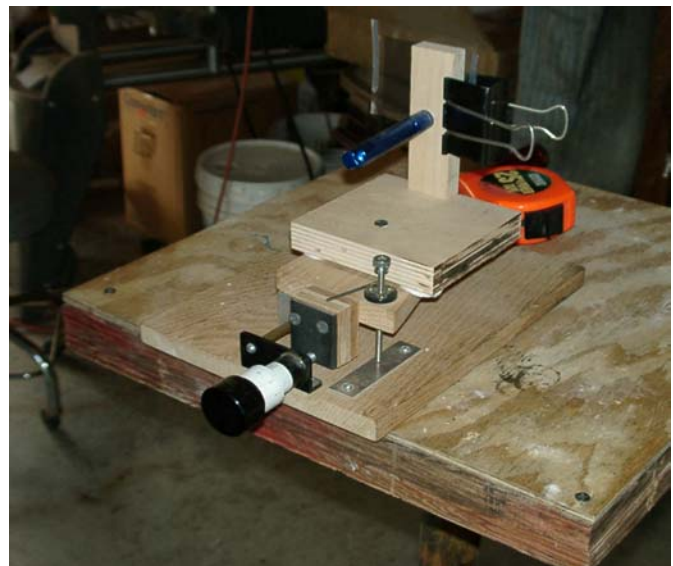


The 16" mirror mounted in a cradle ready for testing.

have an experienced eye at recognizing mirrors with a near perfect curvature.

The pillar and small working surface Chuck had setup at the mirror's focal point now held the testing equipment. This was a home-

made apparatus consisting of a light source and a refraction grating alongside it. Light from the apparatus reflected back to the focal point through the grating revealed solid dark lines curving along the mirror's surface. A micrometer dial moves both the light and grating



The Ronchi test apparatus Chuck Jacobson constructed.

back and forth until perfectly aligned with the mirror's focal point.

The resulting image revealed a broad zone of curvature which, although not desirable in a mirror this size, is still manageable and acceptable for observing. Chuck did mention that mirrors produced by Meade during the period in which it was acquired did exhibit a central hump which would appear evident in the results just per-



Results of Ronchi test.
formed.

The second test we performed was much more tricky and, as Chuck explained, somewhat subjective in its results depending upon who was conducting the test. To 'test the test' we each tried taking readings to determine what sort of variance was evident from our individual perspectives.

The Foucault Knife test requires a steady hand and a steady eye, and lots of patience. Light shone through a fine slit (achieved by two razor edges fixed close together) is reflected off the mirror covered by a couder mask. The couder mask partitions the mirror into various paired zones. The reflected light is then occluded by another razor edge which is introduced into the line of sight until the paired zones darken at the same time. The apparatus is moved back and forth with a micrometer dial and the distances between the zones recorded in thousandths of a centimeter.

Several sets of measurements were taken to provide a reasonable average for the each of the six zones marked out in the mask. Those numbers were then typed into a computer program



Bill Briggs measures results from the Foucault Knife test.

which compares the actual results with a theoretic smooth parabolic. The results from the Foucault Knife test were not spectacular and showed that the mirror is under average with a 1/2 wave-front.

We concluded the morning debating the next steps for the mirror; re-grind and recoat to remove the imperfections or press on regardless of the flaws? Whatever the decision to be made at this stage it is promising to see the combined efforts of Bill Briggs, Nate Andrews and Chuck Jacobson together with the help from Sirius Optics slowly come to fruition.

Although at this point the telescope is just a twinkle in the mirror's eye, I am very excited by the possibilities and future result of our own club telescope.



Observing Hill Maintenance

As the Tacoma Astronomical Society becomes the key user of the Observing Hill at Pierce College it is vital that we should also participate in the care of the site.

Please help by volunteering to clear the site and cutting the grass prior to events.

Contact Matt Flood if you would like to assist in the upkeep of our observing site.

Thank you.

**Members of the
Society inter-
ested in assist-
ing Bill Briggs
should contact
him at either
the General or
Public Meet-
ings, or online.**

May Schedule of Events

- May 4th:**
 General Meeting at UPS, Thompson Hall, Room 130. Presentation will be given by Jarvis Krumbein on 'Compound Telescopes'.
 7:30 PM
- May 8th:**
 Public Night at Pierce College, Sunrise Building. Program will be 'Comets'.
 9:00PM
- May 15th:**
 Club Member Night at Pierce College, Sunrise Building.
 9:00 PM
- May 18th:**
 Trustees Meeting. Sion Heaney's home, 8218 N 9th Street, Tacoma.
 7:30PM
- May 28th:**
 Student Meeting at Pierce College, Cascade Building, Room 203.
 7:00PM
- May 22nd:**
 Public Night at Pierce College, Sunrise Building. Program will be 'Comets'.
 9:00PM

March General Meeting Minutes

by Sion Heaney

Matt Flood was unavailable due to illness so Bob Isaacs presided over the evenings business.

During the 'Show and Tell' session Sion Heaney presented new member welcome packs. Sion also gave a summary of the recent student trip to the Museum of Flight and their participation in the Challenger Mission.

Chuck Jacobson presented some of his most recent and impressive slides he took of Jupiter, Saturn and the Moon. Jerry Cotey then shared some of his pictures he had taken. Jerry Armstrong also took the floor to share the recent image of Saturn from the Cassini space probe.

The presentation for the evening was given by Bob

Matthews on Refractor Optics. He displayed a slideshow of images taken at his workshop and explained the various processes conducted there. All of Bob's resulting optics are certified for their high quality. Bob completed his presentation with a question and answer session from the membership.

May 2004

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4 7:30PM General Meeting	5 ○	6	7	8 9:00PM Public Night
9	10	11 ☾	12	13	14	15 9:00PM Club Member Night
16	17	18 7:30PM Trustees Meeting	19 ●	20	21	22 9:00PM Public Night
23	24	25	26	27 ☽	28 7:00PM Student Meeting	29
30	31					

April General Meeting Minutes

Síon Heaney presented welcome packs for our newest members.

Síon Heaney also presented a proposed wording change to Article 2, section D of the bylaws. The new wording clarified the definition of a family membership. The proposed change was voted upon and accepted. The change in the bylaws has been published to the

TAS website. During the 'Show and Tell' session Nate Andrews displayed some excellent images taken on the previous public night of the transit of Jupiter's moons. Chuck Jacobson also presented his recent astrophotography.

The main presentation was a slide show and talk given by Marvin Nauman

By Síon Heaney

about the aurora viewing in Fairbanks, Alaska. Marvin is the lead photographer for a regular tour especially for viewing auroras. He also presented images of the ice sculpture festival that takes place in Fairbanks and the world famous Ice Hotel. His presentation also detailed some of the science behind what causes aurora and ideal observing conditions.

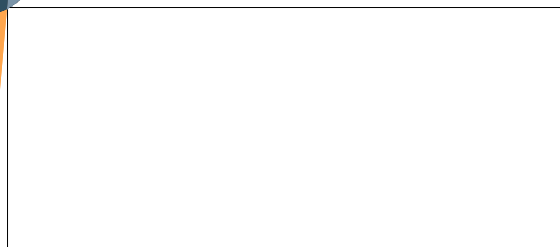
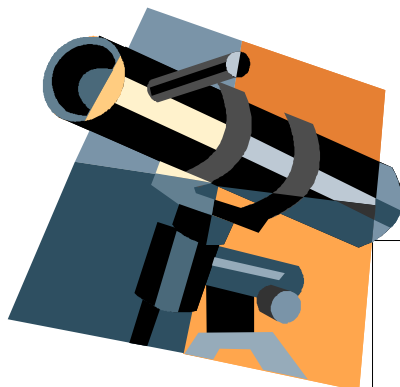
June Schedule of Events

- **June 1st:**
General Meeting at UPS, Thompson Hall, Room 130. Presentation will be given by Gerald Hedlund on 'Ancient Astronomy'.
7:30 PM
- **June 8th:**
NASA Showing of Transit of Venus. Pierce College, Sunrise Building. Time to be determined.
- **June 12th:**
Public Night at Pierce College, Sunrise Building. Program will be 'Constellations'.
9:00PM
- **June 15th:**
Club Member Night at Pierce College, Sunrise Building.
9:00 PM
- **June 19th:**
Trustees Meeting. Bob Isaacs' home, 2233 SW 331st St., Federal Way.
7:30PM
- **June 25th:**
Student Meeting at Pierce College, Cascade Building, Room 203.
7:00PM
- **June 26th:**
Public Night at Pierce College, Sunrise Building. Program will be 'Constellations'.
9:00PM

June 2004

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1 7:30PM General Meeting	2	3 ○	4	5
6	7	8 TBD Transit of Venus Show.	9	10 ☾	11	12 9:00PM Public Night
13	14	15 7:30PM Trustees Meeting	16	17	18 ●	19 9:00PM Club Member Night
20	21	22	23	24	25 ☽ 7:00PM Student Meeting	26 9:00PM Public Night
27	28	29	30			

Northwest Skies



First Class

If undelivered, please return to

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We need your articles.

If you are interested in contributing an article or would like to make a suggestion as to what you'd like to read in **Northwest Skies** then please do contact the Editor. We are always in need of contributions.

Deadline for submitting articles for inclusion in the next edition of **Northwest Skies** is the last Thursday of the month before publishing.

We're on the web!
WWW.TAS-ONLINE.ORG

TAS Outreach: Fruitland Elementary

By Joe Witherspoon

Fruitland Elementary School held their science fair March 10th and TAS was there.

We had a mirror grinding demonstration, a class on the phases of the moon, and telescopes set up in the field. There were about 120 people including students, siblings, and parents attending. The skies were clear and the planets and stars were out in all their glory.

Bill Briggs held a mirror grinding demonstration, handed out public night schedules, Astro fair flyers, and answered ques-

tions about the club. Joe Witherspoon held a class on the phases of the moon and pointed out the planets with a green laser. The show stopper was the telescopes with the majority of the people taking in the stars and planets. They were the last to go well after the fair had ended.

Thanks to TAS members Ken Slavens, Ken Board, Ed Miller, Ed Lofquist, Dan Gifford, and Frank Kerton and Son for an outstanding job on the telescopes. Teacher Colene Roger said that thanks to TAS the sci-

ence fair was the best that they have ever had and hoped that we could return again next year.

If any member of TAS would like to come to these star parties watch the TAS web site, www.tas-online.org or the tas-list.

I am still looking for someone to give out information about the club and talk about Astronomy in general. If you don't have a computer with internet call me at (253) 537-1217 and I'll call you when we have star parties.