



Northwest Skies

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

74 Years of Amateur Astronomy in the Pacific Northwest

Nov—Dec 2005

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The President's Message



Mars photographed by Nate Andrews, 10/30/2005

Mars is here. With the close approach of Mars, our final public night of October was a smash. We had a packed house and even though the sky was hazy, Mars still looked very good through all of the scopes up on the hill. As is our fortune sometimes, the haze disappeared just as the last visitor was leaving and the scopes were coming down. If luck is with us then next weeks Mars night should be just as big as last Saturday.

With the last two months of the year comes a great responsibility for you as club members. You have to elect board members to fill our four open board positions. We also need to confirm one member

to fill a vacated position this past year. This means that five people need to be elected to the Board of Trustees this year. The election will take place at our November 1st general meeting. After the election takes place, you will be asked to choose who you would like to see as our club officers for next year. There will be an advisory ballot made available to all of you on which you can choose who you would like see as your President, Vice-president, Treasurer and Secretary. I would like to take this opportunity to say that it has been a great pleasure to be your President for this past year. As many of you know, this is the third time I have elected President. I served in this position several years ago. With this in mind it is my opinion that it is time for someone else to take the reins and lead this club into the future. It is my wish not to be considered for club officer next year. Also on the ballots, you will be asked to choose

by Bob Isaacs

who you think should be TAS Astronomer of the Year. The ballots will be collected at our December general meeting and club Christmas party and tabulated. Next years officers will be announced at that time.

On Monday 5th December, TAS members have been invited to attend a Christmas party and dinner with BEAS at the Museum of Flight to welcome Shuttle Astronaut Dr. Bonnie Dunbar. Please contact Ken Board for details and forms. The TAS Christmas party will be held on December 16th at the Trinity Lutheran Church at PLU. This will be a pot luck event, so come and join us for a great.

May you and yours have a wonderful holiday season and a happy New Year.

Merry Christmas.

Bob Isaacs

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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Historian	Matt Flood	253.564.3302

Bert Brown describes the recent application of an artificially created guide star to remove the effects of scintillation in Mount Palomar Observatory and elsewhere.

What's Up In Astronomy

by Bert Brown

"Twinkle, twinkle little star", twinkling stars generate cute nursery tunes but to the astronomer the twinkling is just a nuisance. It is caused by variations in the earth's atmosphere; the light from a star gets jostled this way and that before it reaches a telescope and the result is a blurred image.

One way to minimize the twinkling is to build telescopes at higher elevations, and that has been done in this country, in South America, and elsewhere. Another way is to put telescopes in orbit so the atmosphere does not bother at all; this has the added advantage that there is no atmospheric absorption of the light.

But putting things in orbit is very expensive and hard to maintain.

In 1991 our military declassified a procedure called 'adaptive optics', which helps to correct for the twinkling, and this method is being developed for use in the 5.08m (200-inch) Hale Telescope at Palomar, and at other major telescopes.

In adaptive optics, they use light from a guide star in the field of view of the telescope. The guide star light goes through the telescope's normal optical path to the Cassegrain focus near the center. A device called a 'wavefront sensor' analyzes the star's twinkling, and a computer calculates what

corrections should be made to remove the twinkling effect. In the Hale telescope, the computer directs 241 'actuators' that push and pull on the back of a 6" flexible mirror to adjust its reflective front surface. These corrections take place much faster than the atmosphere changes and the final result is a much sharper image of any object being studied.

Palomar astronomers have applied the adaptive optics procedures to a number of projects; studying the atmospheres of planets, the composition of Pluto and its moon, resolving close binary systems, and looking for brown dwarf

stars, for example. But the method has a limitation: there usually is not a sufficiently bright guide star in the field of view, resulting in the scheme working well in only about one percent of the sky.

What to do when there is no good guide star? Astronomers at Palomar and elsewhere have come up with an ingenious solution; create your own guide star and put it where you want it! This sounds absurd and indeed it is not easy to do but it works. They shine a laser beam up the telescope using sodium light at 589 nanometers (5890 Ångströms), the same as in ordinary sodium streetlights. The laser beam interacts with sodium atoms about 100 km up and they glow enough to serve as a guide star for the telescope. Adapting a

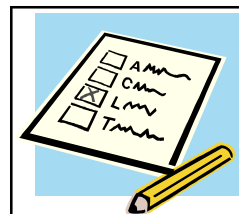
large telescope to this equipment is complicated, and at Palomar they are using a special laser developed at the University of Chicago. It is located in the Coudé room near the telescope mounting.

The Palomar 'laser star' was ready for testing a year ago (October 2004) but due to weather and alignment problems it was not until April of this year that they verified that they actually had a 'star'. So far, the laser has only been pointed straight up, so the next step (after equipment bugs have been eliminated) is to mount it so it will point in the direction the telescope is looking, hopefully by the end of this year. When fully operational it will join two other instruments using similar systems, the 10 meter Keck-II in Hawaii and the Shane 3 meter

telescope at the Lick Observatory (operated by the University of California.)

One interesting complication with this technology is that the Federal Aviation Administration does not like people shooting lasers into the sky since they may interfere with aircraft pilots' vision. So when it is to be used at Palomar the FAA is notified and they try to steer planes away from the observatory, and at the telescope, spotters are stationed outside the dome to warn of any aircraft that might wander their way.

Source: Article *Untwinkle Untwinkle Laser Star* by Scott Kardel, *Engineering and Science*, alumni journal at California Institute of Technology, Vol. LXVIII, No. 3, 2005; pp 8-13.



**Don't
forget
to vote!**

The voting in of new appointees for the Board of Trustees is an important decision. The nominees so far are:

*Bill Briggs
Ken Board
John Pettit
Paul Hinds
Ray Stinson*

Nominations for other member candidates can be made at the meeting before voting.

After the November General Meeting the preferential ballots for Trustee Officer positions will be mailed out. You can mail back your vote or bring it along to the Christmas Party on December 16th.

Editor's Note

For those members who were not present at last October's General Meeting who might be wondering why this edition of Northwest Skies was delayed in either being posted to the website or, if you are still on the mailing list, being delivered to your door it was because I was on a much

needed vacation in the UK. My apologies if the delay in *Northwest Skies* has caused any problems or concerns for you.

Furthermore, after a catastrophic loss of my computer and my recent backups, I am having to recreate a lot of documents, such as the

by Sion Heaney

newsletter, from scratch. Also, it maybe a while before the website will be updated with anything more than the newsletter as I work to rebuild the source files from which it is created. Again, my apologies for delays or concerns with the website and I ask for your patience. Thank you.



Snacks for the General Meeting

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

November 6th

**We need a
volunteer!**

December 13th

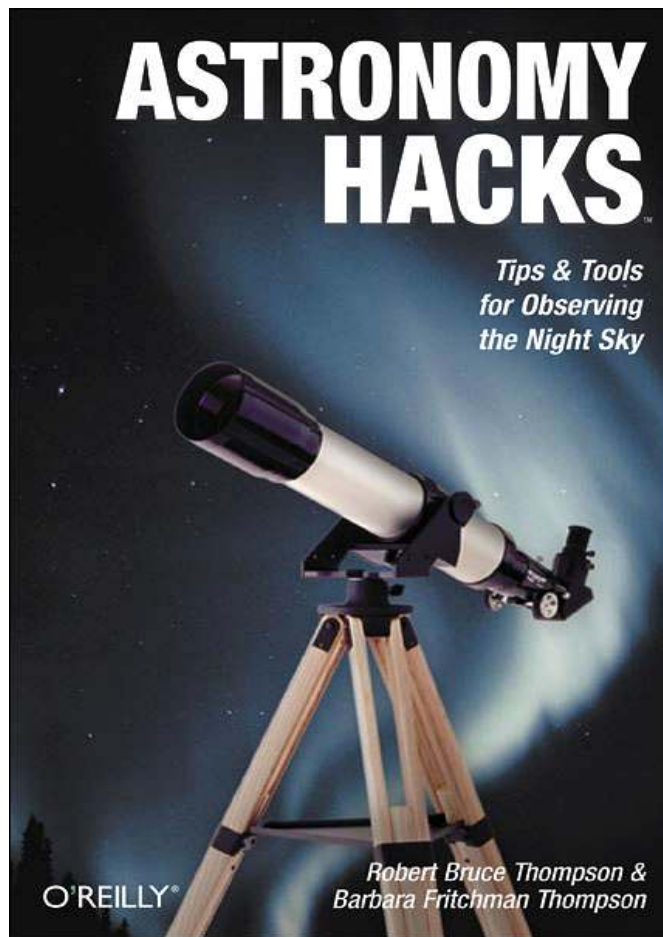
**We need a
volunteer!**

Thank you for making our meetings more enjoyable.



Book Review: Astronomy Hacks

by Sion Heaney



The publisher, O'Reilly, has built a strong reputation for detailed and comprehensive computer books. That reputation is due mostly the depth of knowledge and expertise of those authors they commission. The recent publication of **Astronomy Hacks** written by husband and wife authors Robert and Barbara Thompson has been greeted with many rave reviews.

Both Robert and Barbara Thompson have written several titles on computers which is entirely appropriate for O'Reilly to approach them asking if they knew of an appropriate author for a new book in the 'Hack' series on astronomy. When they responded that they were indeed astronomers, in fact founders of the Winston-Salem Astronomical Society, O'Reilly did not need

to look further.

The term 'hack' is commonly attributed to the computer industry and those instances where a breach of security or malicious damage to a computer system may have occurred. However, it also represents a little known, usually simple, technique for solving a complex problem. This book, **Astronomy Hacks**, collates and categorizes 65 useful and often ingenious astronomy hacks that one might only learn from other amateur astronomers. These are some of the tips and tricks that might be shared from a veteran astronomer to those just beginning or might be overheard at a star party. Many of the hacks are cross-referenced and provide a scale for complexity.

The book is organized into four chapters. The first, *Getting Started*, presents good, practical knowledge for the absolute beginner. Encouragingly, the second listed hack is titled, 'Join an Astronomy

Club', where it details that the best help and advice one can find is in the company of experienced astronomy society members in addition to access to lectures, presentations, equipment, library resources and discounted magazines. One half of the chapter details practical advice and etiquette for preparing to weather the night and attending a star party. The second half provides important information for first time buyers of astronomical equipment. A hack of note within this chapter is the measurement of one's entrance pupil size using Allen wrenches.

The second chapter, *Observing Hacks*, provides a comprehensive list of advice and tips for adjusting to night sight, using charts and guides for finding and identifying celestial objects, star hopping, maintaining a star log of observation, and running a Messier marathon. There is something for everyone in this chapter which provides a good range of tips and tricks from the very detailed informa-

tion of the structure of the retina to the first steps for photographing the night sky with basic equipment.

The last two chapters, *Scope Hacks* and *Accessory Hacks*, present a worthy range of advice for fine tuning, maintaining, improving and upgrading telescopes and such accessories as one might use. Such scope hacks offered describe using a plastic film canister as a collimating tool to improving Dobsonian motions with milk jug washers. The chapter, *Accessory Hacks*, is the most extensive of the four which is hardly surprising having seen the explosion of available equipment and gadgetry, mostly computerized, for the amateur astronomer. From advice on how to dark adapt one's laptop and vehicle to determining the best range of eyepieces and filters for one's needs this is certainly an excellent wealth of tips and tricks.

Overall this is a carefully constructed compendium of no-nonsense hints and tips

that one would gather over time from listening to veteran amateur astronomers. The advice and guidance contained in these pages is very valuable whether one is starting out in astronomy or is already a veteran with advice to share anyway. You might not need everything in the book, or possible understand some of the more complex hacks, but over time this will provide much help towards enhancing your stargazing experiences.

The book most certainly offers something for everyone; beginner or veteran. By no way could a single book contain all the various tips and tricks of amateur astronomy we learn from each other but it does provide a good reference of answers for those most common and sometimes less commonly thought of questions. *Astronomy Hacks* retails for \$24.95 or may be borrowed from our society library where it has become the most recent addition to our 200+ titles.

The full listing of books, CD-ROMs and DVDs in the TAS Library is available online at our website, tas-online.org. Click on Resources drop down menu at the far right of the menu bar and then select the Library menu link. The listing is provided as an Adobe PDF for greatest compatibility. If you don't have access to the website then please request the listing from any Board Trustee.

November 2005 Schedule of Events

- **November 1st:** Outreach event; Mary Queen of Peace School, Sammamish. Solar Party & Scale of the Solar System. 1:30PM
- General meeting at UPS, Thompson Hall Room 130. Program to be announced. 7:30PM
- **November 4th:** Outreach event; Margaret McKenny Elementary School, Olympia. Star Party & Space Exploration. 7:30PM
- Student observing night. 7:00PM
- **November 5th:** Public Night at Pierce College, Sunrise Building Room 118. 'Mars', presented by Dr. Chuck Jacobson.
- **November 15th:** Outreach event; Pioneer Middle School, Steilacoom. Moon Presentation. 7:00AM
- Board of Trustees Meeting. 7:30PM
- **November 17th:** Outreach event; Puyallup Library. Solar Party. 3:30PM
- **November 18th:** Outreach event; Kilo Middle School, Kent.
- Star Party and Presentation on the Constellations. 6:30PM
- Student Meeting at Pierce College, Cascade Building Room 203. 7:00PM
- **November 19th:** Public Night at Pierce College, Sunrise Building Room 118. 'The Moon', presented by Ken Slavens.
- **November 22nd:** Outreach event; Nelson Crane Christian School, Puyallup. Stomp Rockets / Constellations 8:45AM
- **November 23rd:** Outreach event; Kentlake High School, Kent. Presentation on the Sun. 6:30PM
- Outreach event; Graham Library. Star Party and Constellations 6:30PM
- **November 30th:** Outreach event; Purdy Elementary School, Purdy. Star Party and Scale of the Solar System 3:45PM.

November 2005

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1 General Meeting 7:30PM	2 ●	3	4 Student Observing 7:00PM	5 Public Night 7:30PM
6	7	8	9 ☽	10	11	12
13	14	15 Board Meeting 7:30PM	16 ○	17 Outreach Event 3:30PM	18 Student Meeting 7:00PM	19 Public Night 7:30PM
20	21	22 Outreach Event 8:45AM	23 ☾ Outreach Event 6:30PM	24	25	26
27	28	29	30 Outreach Event 3:45PM			

December 2005 Schedule of Events

- **December 2nd:** Student observing night. 7:00PM
- **December 3rd:** Public Night at Pierce College, Sunrise Building Room 118. 'Binoculars and Telescopes', presented by Sion Heaney. 7:30PM
- **December 5th:** BEAS Christmas Party, Museum of Flight. Guest speaker: Dr. Bonnie Dunbar. \$35.00 per person.
- **December 6th:** General meeting at UPS, Thompson Hall Room 130. Program to be announced. 7:30PM
- **December 16th:** **TAS Christmas Party.** Potluck at Trinity Lutheran Church, PLU. 6:00PM
- **December 17th:** Public Night at Pierce College, Sunrise Building Room 118. 'The Christmas Star', presented by Matt Flood. 7:30PM
- **December 30th:** Student Meeting at Pierce College, Cascade Building Room 203. 7:00PM

December 2005

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

General Meeting Minutes and Board of Trustee Meeting Minutes

Please note that the summaries of the September and the October General Meetings as well as the minutes from the Board of Trustee Meetings are available by request to the TAS Secretary, Ken Board.

Thank you.

Northwest Skies



First Class

If undelivered, please return to

Tacoma Astronomical Society
c/o The Newsletter Editor
PO BOX 8881
Tacoma, WA 98418

Email: editor@tas-online.org

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 do make the effort to contact the Editor. We are always in need of original 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

The Year In Review

2005 for the Tacoma Astronomical Society will certainly be remembered for the tremendous work carried out by the Outreach Program, led by Joe Witherspoon. Joe, with the assistance of several members including Ken Board, Dave Armstrong, John Pettit, Ray Stinson and Alice Few, has brought their passion for astronomy to schools, libraries, boys and girls clubs, scout packs and the Puyallup Farmers Market.. If one were to sum up the popularity and success of the Outreach Program in two words they would be 'Stomp Rocket'. The Outreach Program has also been singularly effective in

bringing in the lion's share of much needed donations for the society. Those donations go into furthering the society's goals and services.

One of those services provided for by the society and recently brought up to date this year is the Student Scholarship Fund. After several years of inactivity, the Student Scholarship Fund has been revitalized and aims to provide a \$500 scholarship award to one TAS student member each year upon entering college.

Our efforts into providing more varied and interesting

by Sion Heaney

programs at our Public Nights has also paid dividends in larger attendance and regular mention in the local Tacoma News Tribune. Although the weather has not always cooperated with us on our Public Nights (in fact, it seemed as if it was conspiring against us most of the time) our programs were entertaining enough for us to notice familiar faces returning for following events.

With 2006 looming closer it is important to ensure that TAS continues to grow from strength to strength, and that strength comes from our members—that