

# 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

September—October 2004

## The President's Message

by Matt Flood

This past month, TAS volunteers, the backbone of our club were on display again.

On August 7<sup>th</sup>, at the Astronomy Fair, our dedicated volunteers again rose to the occasion and put on a great show for the public.

So many members contributed that I would not dare try to list them all, as I'm sure I would miss some. Let me just say that I'm proud of the work of all who contributed the many long hours on that day and the many days before in planning this event. Our success on that day, about double last year's attendance, is directly attributed to the hours of hard work on their part. Thank you all!

There was one very special group, unseen by the public, who I would like to especially mention. The viewing site built by Pierce College is a wonderful site but it is not maintenance free. On a Wednesday evening the week before

Astronomy Fair, about a dozen hard working souls showed up at the hillside, tools in hand, to mow, trim and prepare the hill for viewing.

It was a hot dirty task, but again our volunteers came through and cleaned up the hill, I cannot thank you all enough. This, by the way, is not the first nor the last time that this thankless task has, or will be needed to be done. Thank you again to our heroes, past, present and future.

Our yearly chance to show the public that local amateur astronomers exist and can't wait to get them involved is upon us. I'm speaking of course of the Puyallup Fair.

For those who are new, this is our booth manned three shifts a day for seventeen days at the Puyallup Fair to introduce ourselves to the public. The Puyallup Fair is one of the country's great fairs, and our chance to show off our club. You don't need

to be an expert, just willing to talk to people and hand out information. The old timers know just how much fun it is. So sign up at the general meeting September 7<sup>th</sup>, or call Joe Witherspoon at 537-1217.

By the way, we have a new booth (built by dedicated volunteers), in a new location (the hobby hall has been transformed), with a new, yearly public night schedule (thanks again volunteers) written on a cycle (September-August) to match the Puyallup Fair's schedule by providing a full picture of the next twelve months public night meetings we will be hosting..

Again, thank you so much, members for making this such a great club.

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](mailto:editor@tas-online.org)

## People to Contact

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

[www.tas-online.org](http://www.tas-online.org)

Our mailing address is:

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**Bert Brown reflects on his initial formal training in astronomy at Washington State University and how the astronomy program and observatory at WSU has changed over the past half century.**

## What's Up In Astronomy

by Bert Brown

We all know that the leading academic astronomy program in this state is at the University of Washington, which has large staff and grants doctorates in the subject. But what about astronomy at other large state institutions within Washington State? Well, until recently one would have to say, "Not much."

Of course, in my field of study, physics, one learns about topics which are used in astronomy; theories by Kepler, Galileo, Newton, Einstein and many others. But there was nothing in observational astronomy during the mid-20th century.

I received my first formal instruction in astronomy

at Pullman about 55 years ago, at what was then called Washington State College. The instructor was Sidney G. Hacker, a mathematics professor who had taken his degree at Princeton where he had "rubbed elbows" with such people as Albert Einstein and astronomer Henry Norris Russell (the 'R' of the famous H-R diagram plots of stars' intrinsic magnitudes against their spectral types). I also first learned about the early computers from Dr. Hacker (yes, Dr. Hacker. He may have been the first hacker too). These monsters, like UNIVAC and ENIAC, ran on vacuum tubes in those pre-transistor days.

After I left Washington

State College Dr. Hacker managed to obtain a donation from the George Jewett family of Spokane, with which they could construct an observatory at Pullman. In 1953 they built the James Richard Jewett Observatory, named after George's father. The telescope was a 12 inch refractor, built by Alvin Clark & Sons in 1887. At that point, there was an active astronomy program at Washington State.

However, eventually Dr. Hacker retired and passed away. The observatory was still under the math department but most mathematicians, while they may be interested in astronomy, were not up to maintaining an

observatory. A loss of personnel and budget cuts eventually forced the closure of the facility by the 1990s.

But things are starting to 'look up' now at Washington State University. In 2001 the observatory was transferred to the physics department. Physics hired two faculty members, Sukanta Bose and Guy Worthey. Soon after, they also hired an astronomy lecturer, Michael Allen, and their first Claire May and William Band Endowed Chair of Theoretical Physics astrophysicist, George Lake.

William Band was a first-

rate theoretical physicist at Washington State University from about 1949 to the mid-1960s. He and his wife Claire were British and he had been a professor in Beijing, China. On Pearl Harbor Day, they managed to escape out the back door as the Japanese came in the front door of their home. They were subsequently sheltered by the Communist 8th Route Army whilst traveling across China to the Nationalist zone. After the war they came to Pullman.

The Washington State University physics department have remodeled the

Jewett Observatory and repaired the refractor. They are having star parties on a regular basis. During the recent Mars opposition they had over 2000 people in attendance! The astronomy program has a degree minor and there are plans to expand it to a full major in the near future.

My sources for this article have been my own personal experience and Physics Matters, 2004-2005 newsletter of WSU Physics Department. For more info about astronomy at Washington State University, visit their website at: <http://astro.wsu.edu/>.



### **Observing Hill Maintenance**

A special thank you to all the members who turned up and worked on clearing the observing hill site prior to our Astronomy Fair. The area looked fantastic when all was done and complete.

The Tacoma Astronomical Society is the key user of the Observing Hill at Pierce College and it is vital that we should also take care of the site.

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

Thank you.

## **Table Mountain Star Party Aurora**

by Ken Board



Participant at Table Mountain Star Party where thrilled Friday night with a spectacular and unexpected aurora display to the northwest. Tacoma Astronomical Society member Ken Board took the photograph above.



### Snacks for the General Meeting

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

#### September

Ed Miller

#### October

Tami Heaney

Dave Armstrong

Paul Goodwin

Thank you for making our meetings more enjoyable.



## Reflective Optics for Astronomical Telescopes

By Jarvis Krumbein

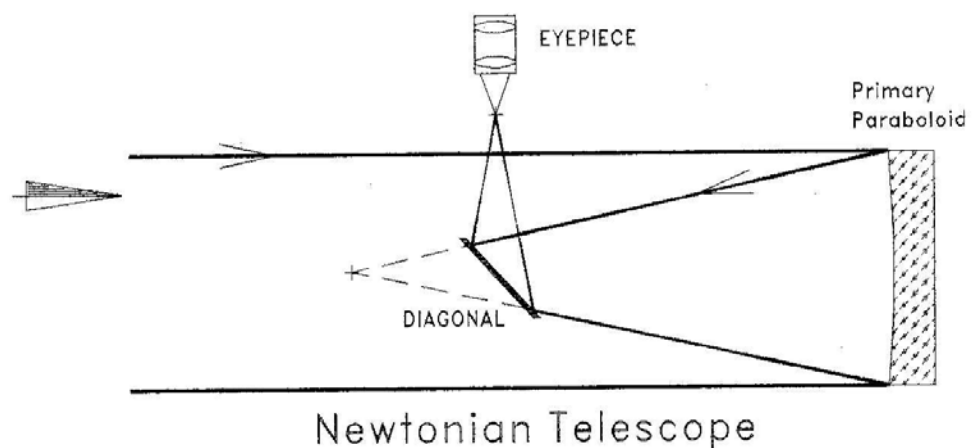
In a recent talk on *Compound Telescope Systems*, I described a variety of types, all of which used reflective elements. Now let's look at the simplest system using only one element, the Newtonian, which uses a concave parabolic mirror to form an image.

Parallel rays from an infinitely distant source (star) are brought to a perfect focus on axis. A small flat mirror, tilted at 45 degrees, is inserted between the mirror and the focal point to bring the fo-

cus image out of the light path so it may be examined. An eyepiece is then used to view the image. Off axis images are not perfect and exhibit coma, the further off axis, the greater the coma. The amount of coma is also affected by the focal ratio of the mirror (focal length divided by the mirror diameter), the lower the number of the f-ratio, the greater the coma. Special corrector lenses are available to reduce the amount of coma. Eyepiece performance

limits the Newtonian to about f4.5. Many small Newtonians (3 to 4 1/2") use mirrors that are spherical instead of parabolic. This is acceptable so long as the f-ratio of the mirror is f10 or greater. At this f-ratio/diameter, the difference between a sphere and a parabola are minimal and the images are acceptable.

Commercial and amateur Newtonians use several different types of mounts. The most common is the DOB (Dobsonian) type. The telescope is able to



move in azimuth and elevation (left-right & up-down) and is very easy to aim at the desired object. Because of the simplicity of the mount, the DOB is one of the most common types used. The DOB is not suitable for long photographic exposures because the image rotates in the focal plane as the earth rotates and the telescope

is moved to track the object being viewed. Up until about 30 years ago, the most common type was the Equatorial Mount where one axis of rotation (Polar) is aimed at the north pole and the other axis (Declination) at 90 degrees to the polar axis. Clockwork is used to rotate the polar axis so that the image can be tracked. The image

does not rotate in the focal plane so this type can be used for long exposure photography. The most common telescopes of this type usually have f-ratios ranging from f6 to f8.

In the next article, we will discuss variations on the Cassegrain type.

**Jarvis Krumbein begins a new series of articles on the optics of various telescopes. In this first article he discusses the Newtonian design.**

**Future articles will explore other telescope designs.**

## Blogging the Astronomy Fair

by Sion Heaney

Our blog on our website is intended to record memories from our various events for future readers. For your reading pleasure the following excerpt is presented to you.

**8.11.2004: "Astronomy Fair 2004: Telescopes, lectures, mirror grinding and aliens."**

*Although those last minute hiccups in any plan test the ingenuity and resourcefulness of the most creative organizers, the preparations and lessons learnt from the previous years inaugural Astronomy Fair paid off in having everything ready and in place for this event. The only major issue to this writer's experience of the Astronomy Fair was his own illness with a bad cough/flu that impeded his usual exuberance during his presentation...*

*But let's not linger on an afternoon lecture in the shaded room of the Sunrise Building of Pierce College's Steilacoom campus, for more exciting events were taking place just across the hallway. Two FBI agents, 'Special Agents' as denoted by their badges, were rustling up interest for participation in their pursuit of the truth! Special Agent 'Facts' Moody and Special Agent Diana Scallion were presenting their dilemma to a group of eager children and adults alike. Both agents were in need of the puzzle solving skills of their audience. For one agent, the solution to these puzzles would lead them to their suspect. For the other, it would lead them to aliens! Yes, aliens; with green skin, big eyes and big elbows. The puzzles led the crowd to telescopes, and from telescopes to mirror grinding, and from mirror grinding to*

*the history of space flight, and finally from space flight to the misplacing of a Galilean moon hidden in the orbit of Saturn. From each puzzle solved came the piece of a larger message. A message that, once revealed, showed that aliens, like us, just want to party and have fun. The proof was indeed revealing as three aliens leapt into the crowd and danced whilst wiggling their big elbows to the music. Upon departing the surprise, shock and amusement was rewarded with identity cards for each participant. Each card further guaranteed the bearer to special privileges should they be abducted and find themselves guests of an alien partying posse.*

*The mastermind behind this scavenger hunt? Let's just say that it was an Alien InvaSion production.*

**A 'blog', if you are unfamiliar with the term, is an online journal or web log.**

**It is a space in which one's thoughts, experiences or reflections can be published to the Internet.**

**If you would like to contribute to the TAS-Online Blog, TOBlog, you can request a login from the webmaster.**

## September Schedule of Events

- September 7th:**  
 General Meeting at UPS, Thompson Hall, Room 130. Presentation will be given by Chuck Jacobson as he reviews his design & construction of the 8" refractor.  
 7:30 PM.
- September 17th:**  
 Student Observing Night. Observing Hill above Sunrise Building at Pierce College.  
 9:00 PM
- September 18th:**  
 Public Night at Pierce College, Sunrise Building. Program will be '110 Celestial Objects'.  
 9:00PM
- September 21st:**  
 Trustees Meeting.  
 7:30PM
- September 24th:**  
 Student Meeting. Room 203 Cascade Building, Pierce College.  
 7:00PM
- September 25th:**  
 Public Night at Pierce College, Sunrise Building. Program will be '110 Celestial Objects'.  
 9:00PM
- September 10th to 26th:**  
 Puyallup Fair. Be sure to visit our new booth in the Hobby Hall.

## July General Meeting Minutes

The July General Meeting presentation was given by Pierce College's lecturer in Astronomy and TAS honorary member, Paul Hinds. Paul presented a view of the Universe being discussed in the scientific community that seeks an electromagnetic alternative to gravity's influence on the structure of the Universe. The theory proposes that electrical forces, rather than

gravitational forces, are the key element in defining the structures of galaxies, super-clusters and nebulae clouds. The filaments of these structures are created by material being conveyed along by the electrical currents moving through them. The model is described as a 'plasma universe'.

The theory also presents

by Sion Heaney

some alternative views to the interior mechanics of the stellar mechanics and the structures of plasma seen within the corona. It also suggests that all solar energy is generated on the surface and no nuclear reaction is required.

Dave Armstrong also presented images of the Venus Transit taken from NYC.

# September 2004

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

### August General Meeting Minutes

August's General Meeting was opened in the lecture next door to our regular venue since the facilities within Room 130 were unavailable.

Sign up sheets for the Puyallup Fair were put out for members. There were still a lot of empty time slots. The redesigned hobby hall and our new booth was detailed. The new position puts us

prominently in view.

The main presentation , 'The Casinni Mission' was given by Alice Few. This was a set of lecture slides and notes provided by JPL Mission Navigator, Stephen Gillam, and distributed through the Night Sky Network of which TAS is a member.

Alice's lecture focused on the Huygens probe and

by Sion Heaney

it's planned descent into the atmosphere of Titan early in 2005. Alice presented the current knowledge on Titans atmospheric conditions and the timeline for descent of the probe.

The presentation also included the most recent imagery from the Casinni mission of Saturn, it's ring system and moons.

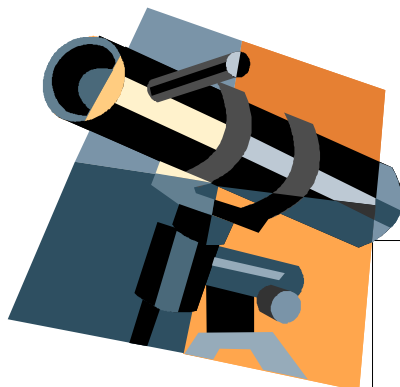
### October Schedule of Events

- **October 5th:** General Meeting at UPS, Thompson Hall, Room 130. Presentation to be determined. 7:30 PM
- **October 9th:** Public Night at Pierce College, Sunrise Building. Program will be 'Extra-Solar Planets'. 7:30PM
- **October 15th:** Student Observing Night at Pierce College, Observing Hill, 7:30PM
- **October 19th:** Trustees Meeting. 7:30PM
- **October 22nd:** Student Meeting. Room 203 Cascade Building, Pierce College. 7:00PM
- **October 23rd:** Public Night at Pierce College, Sunrise Building. Program will be 'Extra-Solar Planets'. 7:30PM

# October 2004

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

## Northwest Skies



### First Class

If undelivered, please return to

Tacoma Astronomical Society  
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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](http://WWW.TAS-ONLINE.ORG)

### Recent TAS Outreach Activities

On July 10, 2004 TAS members Dave Armstrong, George Hiles, and Joe Witherspoon represented the club at the annual Lakewood Summer FEST. Dave and George set up telescopes to view sun spots Joe was doing stomp rockets. The weather was not the best with some rain. A local newspaper reporter, from the American Community Journal, was there taking pictures and said we would publish our Astro Fair in his paper. A lot of public night schedules, Astro Fair filers and information were given out from our booth,

which also kept the telescopes dry during the rain. The plan was to do some viewing after it got dark but due to the weather I as decided to fold our tent about 7:30pm and call it a day.

Many thanks to those who made our first Lakewood Summer FEST a success. Next year maybe the weather will be better. On August 14<sup>th</sup> from 11AM to @ PM, TAS was present at the Pierce County Library Jamboree. Leo Romo, and John Pettit set up their telescopes and were viewing Sun Spots while

by Joe Witherspoon

Joe Witherspoon built Stomp Rockets and give out info on the Club. The TAS area was the hit of the Jamboree.

*Editor's Note: To volunteer for the Outreach Program please contact Joe Witherspoon. Thank you.*

