

## EVENTS CALENDAR

(unless otherwise noted, all events are at the Edwin Ritchie Observatory, Battle Point Park)

### MARCH

MARCH 2

BPAA Board Meeting Cancelled

MARCH 4 ●

MARCH 12 ◐

MARCH 13

Daylight Saving Time begins

MARCH 13

230<sup>th</sup> Anniversary of William Herschel's Discovery of Uranus

MARCH 19 ○

MARCH 20

Vernal Equinox, 4:21 p.m. PDT

MARCH 26

7 p.m. Planetarium Show and Star Party "Cosmic Gems of the Southern Sky"

MARCH 26 ◑

MARCH 26

2011 Messier Marathon, Yakima, Washington

### APRIL

APRIL 3 ●

APRIL 6

7 p.m. BPAA Board Meeting

APRIL 11 ◑

APRIL 12

30<sup>th</sup> Anniversary 1<sup>st</sup> Space Shuttle Launch

APRIL 17 ○

APRIL 22

Lyrids Meteor Shower Peak

APRIL 23

7:30 p.m. Planetarium Show and Star Party

APRIL 24 ◑

APRIL 28

7:00–9:00 p.m. Introduction to Amateur Astronomy Class



# Quarterly

www.bpastro.org Bainbridge Island, WA

## 5,200 Light Years from Bainbridge Island: the Rosette Nebula

Young, hot, blue stars ionize and heat the surrounding gas in the Monoceros region of the Milky

Way Galaxy. Steve Ruhl took this photo from his backyard near Winslow on Bainbridge Island. BPAA members can check out the association's Losmandy Gemini G11 mount to try their hand at astrophotography. Article on page 8.

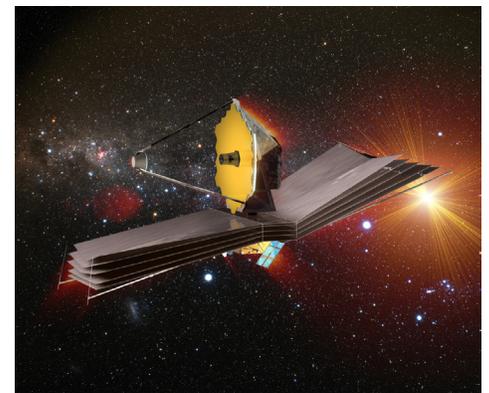


## An Array of Astronomers

### BPAA members help out at the 2011 AAS Meeting

Every four years the American Astronomical Society holds its annual meeting at the Washington State Convention Center in Seattle. The AAS recruits volunteers from local amateur astronomy associations, including BPAA, to help run the meeting. Diane Colvin and I answered the call, as we had in 2007 and 2003.

This was the 217<sup>th</sup> meeting of the AAS, and there were nearly 3000 attendees from around the world. They had the opportunity to listen to over 700 oral and poster presentations on current scientific astronomical research. Topics included discussions about dark energy and matter in the formation



James Webb Space Telescope Credit: ESA

of the universe, gravitational waves, exoplanet studies and discovery, black holes, supernovae, galaxy evolution, sky surveys and other subjects too numerous to list. If this was not sufficiently overwhelming there were hundreds of exhibits from national and international agencies that fund and operate both space and ground-based telescope systems, as well as corporate vendors who supply the research community with the tools to conduct cutting-

APRIL 28–MAY 1

Camp Delany Star Party, Sun  
Lakes-Dry Falls State Park

**MAY**

MAY 3 ●

MAY 4

7 p.m. BPAA Board Meeting

MAY 5

7:00-9:00 p.m. Introduction  
to Amateur Astronomy; Eta  
Aquarids Meteor Shower Peak

MAY 7

Astronomy Day

MAY 10 ●

MAY 12

7:00-9:00 p.m. Introduction to  
Amateur Astronomy

MAY 17 ○

MAY 19

7:00-9:00 p.m. Introduction to  
Amateur Astronomy

MAY 21

8:00 p.m. Planetarium Show  
and Star Party

MAY 24 ●

MAY 25

50th Anniversary John F.  
Kennedy's Moon Goal Speech

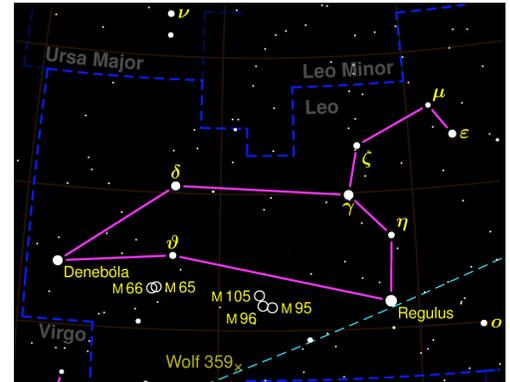
MAY 26

7:00-9:00 p.m. Introduction to  
Amateur Astronomy

Any member who is planning to observe can invite others to join in by sending an email to [bpaa@yahoogroups.com](mailto:bpaa@yahoogroups.com). To join our email group, send an email with your name to [bpaa-owner@yahoogroups.com](mailto:bpaa-owner@yahoogroups.com) and we can enroll you. If you want to have web access to the messages and files, you can join the Yahooogroups by clicking the register link for new users on <http://groups.yahoo.com/>. Request to join at <http://groups.yahoo.com/group/bpaa/>. The system will send us a message, and we'll approve your request after we verify your membership.

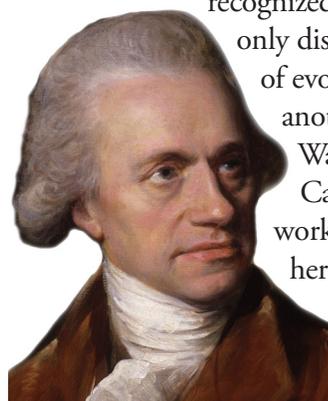
# The Lion in Spring

**CALENDAR NOTES:** It's spring. Just in case the outdoor temperatures provide no clue, look up. Spring evenings provide us with a view of the constellation of Leo, the Lion. Its brightest star, Regulus, can be located along a sightline from the bowl of the Big Dipper. I like Leo for the same reason I like Orion: it resembles what it was named for. Think a lion reclining with its legs curled under it. The rear legs and haunches are marked by the triangle to the left of Regulus. The head and mane are the stars above Regulus that look like a backwards question mark. Regulus is the dot.



A planet to watch this spring is Mercury. It will be visible to the naked eye in the second week in March, close to Jupiter, making it easy to locate. On March 15, Mercury and Jupiter will be just two degrees apart. Mercury will continue to shine bright above the western horizon for the remainder of the month. Another planetary favorite, Saturn, reaches its maximum brightness for the year in late March. And Venus will be playing its familiar “Morning Star” role. Look for it in the east-southeast at dawn.

There are a number of notable anniversaries this spring. One marks William Herschel's discovery of Uranus in 1781. The American Astronomical Society, at its annual meeting in Seattle in January, devoted an entire session to the astronomical contributions of the Herschel family. William Herschel,



William Herschel

recognized as one of the greatest observers of all time, not only discovered the planet Uranus, but invented the notion of evolution of nebulae and clusters from one type to another, made the first quantitative map of the Milky Way, and first detected infrared radiation. His sister Caroline was vital to all of William's observational work, data reduction, and catalog compilation, and on her own, discovered many comets. William's son John extended his father's sky survey to the southern hemisphere and developed the mathematics for turning observational data into binary star orbits.

And if that's not enough, William was also a musician and composed twenty-four symphonies and many concertos. Whew! Must be fun being a Herschel and going to Ancestry.com.

Another notable date: April 12, the 30th anniversary of the first space shuttle launch. And here we are, thirty years later, watching the program phase out. I always wanted to watch a space shuttle launch, but I guess it's high time to strike it from my bucket list. There's not just the obstacle of getting from the upper left hand corner of the map to the lower right hand corner, but the additional problem of the all-too-common launch delays. The first orbital flight of the space shuttle was launched on April 12, 1981. The final shuttle mission will be the Space Shuttle Atlantis, scheduled to launch

AAS, *con't* from page 1



Diane Colvin ponders poster presentations. Photo by Harry Colvin

edge research. During our visits to the exhibits we had an opportunity to collect information in the form of pamphlets, booklets, brochures, CD disks, calendars, and so on for BPAA's Ritchie Observatory library.

At this meeting we were struck by the changes and advances that have been made in astronomy in the past decade. For example, when we first attended these meetings only three exoplanets had been discovered; now there are over five hundred and predictions are that within several years that number will be in the thousands. Many of these will be earth-sized, with surface conditions that could support life.

NASA's Exoplanet Science Institute is one of the lead agencies funding discovery and study of this class of exoplanets. NASA publication "The Exoplanet Community Report" by P. R. Lawson et al., is a detailed discussion on current exoplanets research, available online at <http://exep.jpl.nasa.gov/documents/ExoplanetCommunityReport.pdf>. We picked up a hard copy for the Ritchie Observatory library.

Several research groups reported that the size and capability of future ground and space-based telescopes

will produce huge data streams from billions of objects that have yet to be discovered or cataloged. To analyze this data will require techniques that have yet to be developed, presenting one of the most difficult challenges that will be faced by professional astronomers in the next decade. Under discussion are ways that the citizen community and amateur astronomers could play a key role in analyzing data.

An example of the future in ground based telescopes is the Thirty Meter Telescope (TMT) planned for operation on Mauna Kea in Hawaii. The TMT is a project which includes agencies from China, India, Japan, Canada, and the USA. The telescope will be equipped with fully integrated laser guide star adaptive optics giving the telescope 156 times the collecting area and ten times the resolution of the Hubble Space Telescope.

The James Webb Space Telescope (JWST), pictured on page 1, is a collaboration between NASA, the European Space Agency and the Canadian Space Agency. This telescope is an example of the future in space-based telescopes and in some respects is the replacement for the Hubble Space Telescope. But they are very different in that the JWST will be optimized for infrared light, essential for

viewing objects at the edge of the Universe. And the JWST uses many technologies developed after the Hubble was launched. Some of the more advanced JWST instruments discussed at this meeting were ultra-lightweight beryllium mirrors, super cold helium cryocoolers, and advanced communications networks to store and transmit data.

Other more specialized space telescopes programs include the International X-ray Observatory (IXO). X-ray spectrum data obtained from this telescope could answer fundamental questions about space-time around black holes, quantum chromodynamics in neutron stars and the structure of the Universe. The IXO capabilities will be two orders of magnitude over current facilities.

I want to mention two excellent publications that we collected for the BPAA library. The first is "Tour of the Electromagnetic Spectrum" available on CD and in pamphlet form. This is an outstanding teaching tool and a review of spectrum concepts. It is written for the general public, but is complete and detailed. The second is a book titled *Space Data*. Produced by Northrop Grumman, the book is packed with basic information used in the planning of space systems. It includes chapters on launch vehicles and space propulsion, spacecraft design, mission planning, and atmospheric entry physics. If you want to know all about what rockets are launching what and from where this book will tell you. And if you like equations that describe the physics of launching a rocket this is the book for you. Enjoy.

And consider volunteering for the next AAS Seattle meeting in 2015. It is well worth doing. —Harry Colvin



The Thirty Meter Telescope. Rendering courtesy TMT

# President's Potpourri



• **New Class at the Ritchie:** Beginning April 28, Dave Fong and I will be teaching a practical introduction to amateur astronomy. This is not 'Astronomy 101.' The class is designed to meet the needs of amateur astronomers, covering theory, visually navigating the night sky, finding objects with a star chart, and considerations of telescope design, along with some advanced topics. We are taking a flexible approach: if you have a topic that you would like us to cover, let us know and we will work it in. If the skies are clear after class, we will break out some telescopes or open up the dome to put our new-found knowledge to practical use.

This class, open to the public, is scheduled for six Thursdays from 7–9 p.m. Sign-up is through the BI Parks District. The cost is \$49. Initially, we wanted to offer a discount for members but this is incompatible with the Park District's sign-up process. After the class is finished, we are considering some special options for members who attend the class (and regular members too!)

• **Donations for Public Planetarium Shows:** We are victims of our own success. Our planetarium shows have drawn overwhelming crowds for a building that seats 35–40 people. We regularly have crowds of over 100 people and we are regularly engaged in crowd control.

The board is considering asking for a \$2/person or \$5/family donation for planetarium shows. Members would be exempt from this but we do have

many people who regularly attend our shows who are not members. We would not turn anyone away for a lack of ability to pay but would specify a recommended donation in the press release and at the show itself.

As members, you should feel absolutely welcome to come to these shows. My guess is that these crowds inhibit some members from coming. Preferred seating for members is another alternative, although this has all sorts of logistical issues.

The planetarium shows allow the BPAA to fulfill its public education mission but we do incur expenses. The hope is that these donations will mitigate some of the expenses.

If you have an opinion (for, against or other ideas) on this, please drop me an email at [president@bpastro.org](mailto:president@bpastro.org).

—Stephen Ruhl

## Calendar Notes *con't from page 2*



*Space Shuttle, courtesy NASA*

to the International Space Station on June 28, 2011.

Finally, in the anniversary category, May 25 is the 50th anniversary of John F. Kennedy's 'Moon Goal' speech. *The Seattle Times* recently quoted a Hanford engineer saying, "We figured out how to put a man on the moon in ten years using slide rules... [but we] still can't seem to get this [Hanford nuclear waste cleanup] right."

It is amazing that with 1960s technology Kennedy's goal for landing a man on the Moon was achieved on July 20, 1969, just a little over eight years after his speech. Hard

to believe that even with all our technical advancements that we could set

a goal like that—for example, to 'decarbonize' coal—and achieve it within this decade.

Join us for our planetarium shows on March 26, April 23, and May 21. These shows will be accompanied by star parties if the skies are clear. Note that the starting times are 7:00 p.m. in March, 7:30 p.m. in April, and 8:00 p.m. in May.

If you want to get an early start on the regional star party scene, try the Messier Marathon in Yakima on March 26. Messier marathons are generally held around the vernal equinox, and the object is to observe all of the Messier objects in a single night. It is actually possible, while

not probable, to do so, and fun to try. For sure, your chances of success will be better in Yakima than here in Western Washington. Information is available from the Yakima Astronomical Society at [www.perr.com/yvac.html](http://www.perr.com/yvac.html). There's also the Camp Delany Star Party from April 28–May 1, sponsored by our neighboring club in Bremerton, the Olympic Astronomical Society, and held in a beautiful and intriguing venue, Sun Lakes-Dry Falls State Park, near Ephrata, Washington. I've attended in the past and highly recommend it. Registration information is at the club's Web site, [www.olympicastronomicalsociety.org](http://www.olympicastronomicalsociety.org).

Finally, Astronomy Day is May 7. The purpose of this day is to bring astronomy to the people. Let's hope for clear skies! —Diane Colvin

BPAA Events Manager

# 2011 Awards Dinner: Harry Colvin Roasted



*Harry Colvin and Steve Ruhl*

On February 5, BPAA members got together and roasted our ex-president Harry Colvin. Malcolm Saunders, Nels Johansen and I took some pretty good shots at Harry. (He is a pretty easy target.)

Harry has done a considerable amount of work for this club over many years and provided leadership and guidance when the club needed it. I will say it again: Thanks, Harry for all of your contributions.—

*Stephen Ruhl*



*Nels gets in a good one.*



*Harry receives his award from Steve, Mike Browning and Patrick Saunders look on.*



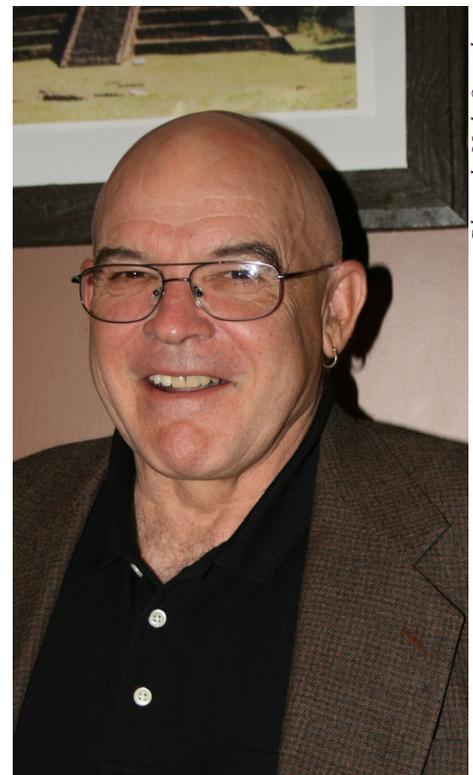
*Malcolm, too.*



*It was a long story...Patrick Saunders, Frank Schroer, Malcolm Saunders and Dave Fong*



*A party of astronomers*



*Harry Colvin*

*Photos by Vicki Saunders*

# TERRAQUAGATION

## Seeing Stars: Astronomy 0.001

I would like to propose a new word that acknowledges a long overlooked contribution to astronomy. To begin, I have a couple of questions: How did astronomy get started? And when?

The consensus is that, after the beginnings of Homo sapiens in equatorial Africa maybe 180,000 years ago, and after about 90,000 years of being homebodies, we started getting restless and moving out north and east. Having never been “there” before, we didn’t know where we were going, and we didn’t have maps. How did we manage to get around without getting lost?

We had the skills, knowledge and behaviors of hunter-gatherers, such as identifying and tracking lion spoor, distinguishing when a horse told his kind about food or signaled danger, watching storks migrate, following hyenas by their smell, climbing a tree for a better look, feeling the brush of wind on our faces that meant a sandstorm. We must have used rocks and streams as markers, and probably we put some sort of sign on them to help us remember our way, or to communicate to others.

Of course there was the sky and its beauty, both day and night. But I wonder if it was the traveler’s need for reliable markers that sparked a systematic look at the sky. It may have helped that our ancestors were in Africa when they started checking the sky because the Sun always rose close to due east. (Well, a lot closer to due east than our Sun does here on Bainbridge, half-way from the equator to the North Pole.) The Sun’s rising and setting and the shadows it cast were useful for determining directions during the day. But what about at night?

At night in the northern hemisphere, there are a few bright stars that never set. Their dependability and direction perhaps came to be recognized before there was writing. The early Egyptians named two of them “The Indestructibles,” Kochab in Ursa Minor and Mizar in Ursa Major, and associated them with eternity and the afterlife. They believed their pharaohs became stars in the northern sky when they died. It’s been postulated that when a plumb bob suspended above one intersected the other—thus showing due north—they used them to align the pyramids, thereby helping the pharaohs toward immortality.

I’ve always imagined the early peoples who named the stars were shepherds in the Middle East, sitting around their small campfires at night entertaining themselves with wild tales about the shapes they saw in the sky. That’s partly because a large percentage of the star names we use are Arabic. But I also think the first serious travelers out of Africa were herding or following migrating flocks, and I suspect that they had an even more critical motive in observing and knowing their sky—the need to find their way back to water or the fold when they or their sheep went astray.

I imagine our ancestors drawing and speaking, handing down their



*Earth Courtesy NASA*

knowledge. The constellations our ancestors named reflected their experiences and imaginations. They left us a lion, a bull, a snake, some birds, a scorpion, several women, some hunters, a king, a dragon, a flying horse (who hasn’t wanted one?) and then a few common objects like a scales.



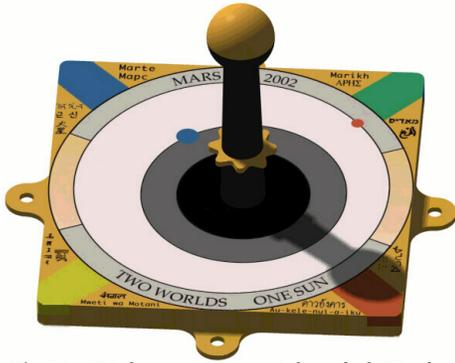
*Gobekli Tepe Lion*

They scratched lines on bits of wood and stone, possibly recording days or months—primitive astronomy. It’s interesting that the Gobekli Tepe, the sanctuary found recently in Eastern Turkey dating from about 9,500 BCE, shows lions, bulls, snakes and vultures—the same animals imagined in the constellations—and also geometric patterns. (John Rudolph, the architect of the Ritchie Observatory, was fascinated with such petroglyphs and always read astronomical meanings into them.)

Because of the proximity of Africa to the Middle East, and because of the importance of hunting, I think the initial migrations started out over land. From the Middle East it was possible to travel largely by land into the Far East, and, jumping across to Gibraltar or across the Hellespont and the Bosphorus, into Europe.

Certainly long before 10,000 BCE people had been venturing out on the sea. They must have taken with them their skills of reading the sky for direction, and developed a knowledge of the waves and the currents, the kinds of fish and their seasons, the clouds and the winds, and the colors of the sky. What they learned from the Mediterranean they also learned, probably separately,

*Con’t page 7*



The MarsDial, an extraterrestrial sundial. Woody Sullivan was a member of the design team.

## Woody Sullivan to host North American Sundial Society Meeting in Seattle August 18-21

I will be hosting this year's meeting of the North American Sundial Society (NASS) here in Seattle (on the University of Washington campus) Thursday-Sunday 18–21 August 2011. You are invited—more details will eventually be available on the NASS Web site <http://www.sundials.org>. The format will be: Thursday evening—informal reception, Friday—sessions, Saturday—bus tour and dinner, Sunday morning—final sessions. NASS last met in Seattle in 1998 and there's been considerable gnomonic activity in these parts since then, so y'all come.

*P.S.* Many details of Seattle dials can be checked out at my Seattle Sundial Trail at <http://www.sundials.co.uk/~seattle.htm> My Web site on Northwest Sundials is at <http://www.astro.washington.edu/users/woody/Sundials/Home.html>. This has general info and will lead you to a Google Map (with details on each dial) of even more Seattle dials, as well as Google Maps of Puget Sound region dials and Washington State dials (but without details on each dial, yet).

—Dr. Woodruff “Woody” Sullivan  
Professor of Astronomy, University of Washington

## Terraquagation, *cont't from page 6*

from the Pacific: by 4,000 BCE, Austronesians had begun to colonize the islands east of Australia. Unfortunately for scientific research, any records those early sailors may have left are drowned in the seas. But the one constant we know they shared with land travelers was what they observed in the sky.

When neither the shifting desert sands nor the grass of the bush nor the waves of the sea could carry any permanent marks, the stars in their courses were dependable. For those early peoples in their uncertain world the regularity of the sky must have been almost mysterious. Besides the wonder, the overwhelming events that seemed to come out of the sky from nowhere perhaps were part of the reasons that people went in awe of the stars, worshipped them, and developed both myths and increasingly complex tools to use, remember, and measure them: calendars (the first recorded one dates c. 3,000 BCE), taller and taller gnomons (the part of the sundial that casts the shadow), quadrants (angle-measuring instruments), the cross-staff (for making astronomical measurements, and for navigation), astrolabes (for navigation and predicting star positions), maps, chronometers such as hourglasses and now atomic clocks, compasses, and telescopes.

When did astronomy start? A long, long time before our ancestors were making any records we know of. But perhaps their earliest impulses were to make some marks they would remember about a major event and then record them where they would last. And who started it? Probably the Africans who were looking at the amazing sky. Therefore, because of the importance of our traveling,

migrating, sailing, both on land and at sea, I suggest a word that takes both into account: *terra*—land, plus *aqua*—water, plus *agere*—to move about, and propose terraquagation—which would mean to move across the land and the sea. Or, to pay tribute to astronomy and the ensuing air and space travel, should it include *caelum*—the sky—also: terraquacaelugation (ter-a-kwa-seel-yu-ga-shun)?

— Anna Edmonds



Al-Sahli's Astrolabe. National Archaeological Museum of Spain

### References:

- Editorial help: Susan Eyre
- Diamond, Jared, *Guns, Germs, and Steel*, W.W. Norton & Company, Inc., New York, 1997
- Lavery, Brian, *Ship*, DK Publishing, New York, 2004
- Steele, John M., *A Brief Introduction to Astronomy in the Middle East*, Saqi, London, 2008
- Web sites
- [http://en.wikipedia.org/wiki/Babylonian\\_astronomy](http://en.wikipedia.org/wiki/Babylonian_astronomy)
- <http://www.crystalinks.com/sumercalendars.html>
- <http://www.naic.edu/~gibson/starnames/starnames.html>
- <http://www.astrolabes.org>
- [http://en.wikipedia.org/wiki/polynesian\\_navigation](http://en.wikipedia.org/wiki/polynesian_navigation)
- [http://wikipedia.org/wiki/Austronesian\\_navigation](http://wikipedia.org/wiki/Austronesian_navigation)

# Steve's Winter Astrophotos

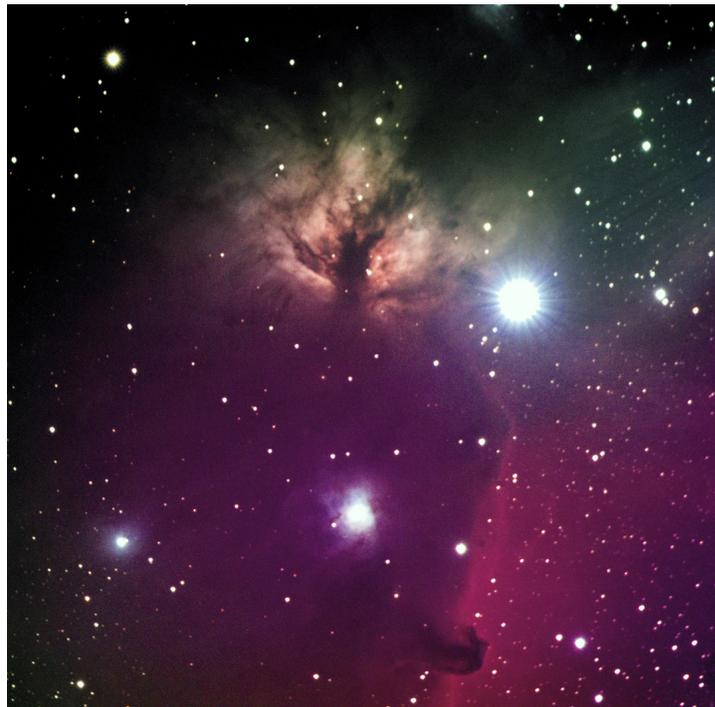
I had some fear that there had been too few clear nights too far between this winter to produce enough photos for this column. But when I went to my files I found worthwhile photos. Of course, when the seeing is good, winter brings the target-rich environment of Orion and Taurus.

I should mention that previous photos in this column were done on the BPA's Losmandy Gemini G11 mount. I enjoyed working with this mount and decided to get my own G11. (My mount has different electronics. If you are interested, drop me an email ([president@bpaastro.org](mailto:president@bpaastro.org)) and I will give you the specifics. The BPA's mount is available for check-out. If you are inclined, you can learn how to use the club's G11

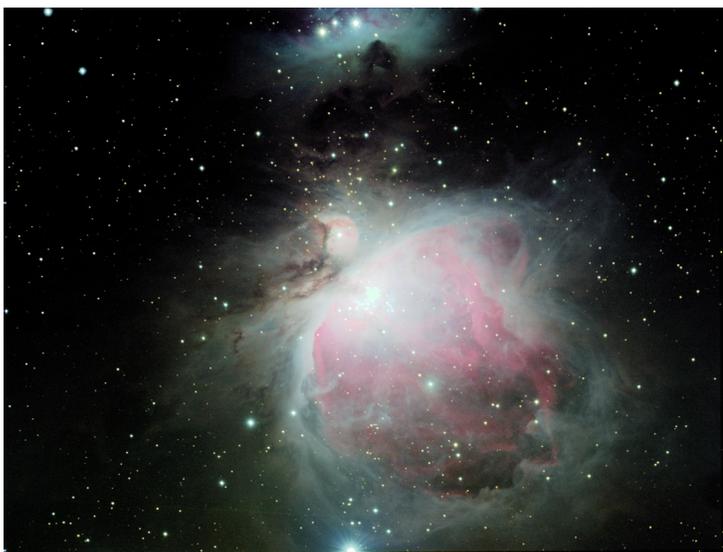
to make your own astrophotos.

All photos are taken from Bainbridge Island with an AstroTech 106 LE triplet refractor & SBIG 8300M w/color filter wheel on a Losmandy G11 mount with Sidereal Technology electronics. Those of you reading the print edition can see the full color photos by following the links to the Spring 2011 Newsletter at [www.bpaastro.org](http://www.bpaastro.org).

While celebrating New Years, I left the camera on auto-pilot. The result is above:



*The Horsehead Nebula, IC 434, The Flame Nebula (NGC 2024), & Alnitak (the east-most star in Orion's belt) 12/31/2010-1/1/2011  
Luminosity (4x600 sec, 7x300 sec)  
RGB (5x300 sec each)  
Total exposure 150 minutes*



The Great Nebula of Orion is a really bright object and it is difficult keeping the center of the nebula from being washed out. The shorter luminosity images were taken to bring out some detail in the center.

*M42 The Great Nebula of Orion  
12/30/2010-12/31/2010  
Luminosity (4x300 sec, 4x120 sec)  
RGB (4x300 sec each)  
Total exposure 108 minutes*



*M45 The Pleiades  
12/30/2010  
Luminosity (5x300 sec)  
RGB (3x300 sec each)  
Total exposure 70 minutes*

Another bright object but getting the nebulosity captured can be a little tricky. If you own a Subaru, this is the set of stars that inspired the logo. "Subaru" is Japanese for Pleiades. The Pleiades is in the constellation of Taurus.



*M1 The Crab Nebula  
12/30/2010  
Luminosity (5x300 sec)  
RGB (5x300 sec each)  
Total exposure 100 minutes*

This is Messier's first not-a-comet object. The crab is a supernova remnant that exploded on July 4, 1054 AD. Since it is expanding, the object Messier saw in 1758 was more compact and brighter than its current version. While smaller than the previous objects, I enjoy seeing the dense star field around the object. The Crab Nebula is in the constellation of Taurus.

*NGC 2244 The Rosette Nebula  
12/30/2010  
Luminosity (5x300 sec, 6x600 sec)  
RGB (6x300 sec each)  
Total exposure 180 minutes*

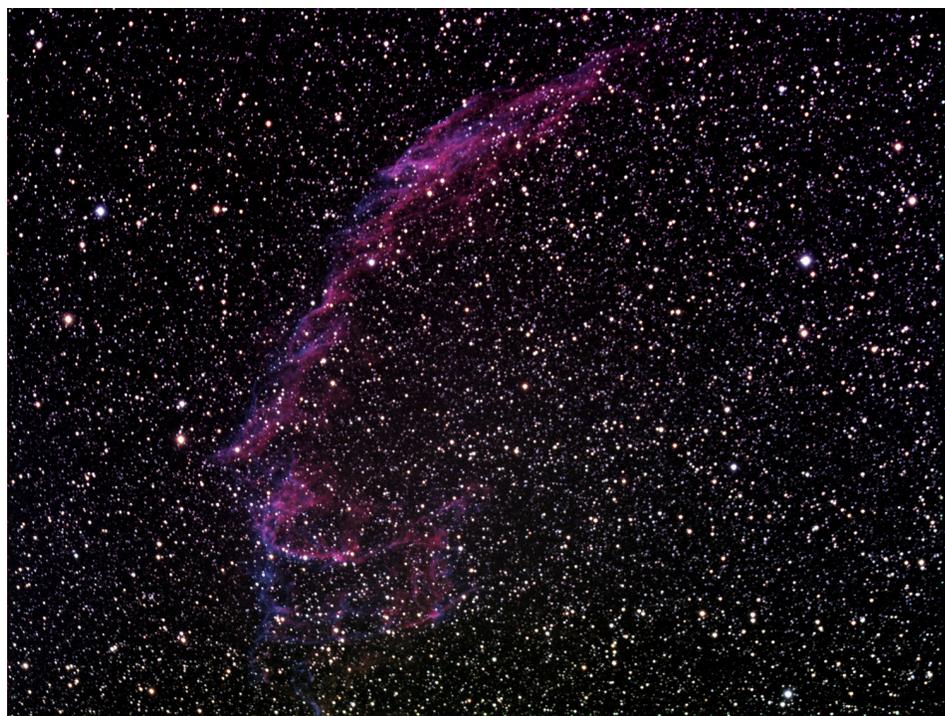
The photo is on the front page of the newsletter. This is one of my favorite objects. The open cluster has many large bright new stars in it. The Rosette Nebula is in the constellation Monoceros.

These next two nebula are two pieces of the Veil Supernova remnant. These were shot in November while I was waiting for Orion to get above the trees. My backyard is declinationally challenged.



*NGC6960 The Witch's Broom Nebula  
(Western Portion of the Veil Nebula)  
11/10/2010  
Luminosity (12x300 sec)  
RGB (7x300 sec each)  
Total exposure 165 minutes*

*NGC6992/95 (Eastern portion of the Veil Nebula)  
11/28/2010  
Luminosity (10x300 sec)  
RGB (6x300 sec each)  
Total exposure 140 minutes*



## IN THIS ISSUE

- 1 CALENDAR
- 2 CALENDAR NOTES: The Lion in Spring
- 4 PRESIDENT'S MESSAGE: Spring Class, Donations
- 6 SEEING STARS: Terraquagation

### EVENTS

- 5 2011 Awards Dinner: Roasting Harry
- 7 North American Sundial Society Meeting

### ARTICLES

- 1 2011 AAS Meeting
- 8 Winter Astrophotos

*BPA*A Quarterly is a publication of the Battle Point Astronomical Association. Submissions due on the 10th of the month before the quarter begins: quarters begin December, March, June, and September. Query [newsletter@bpaastro.org](mailto:newsletter@bpaastro.org). Send graphics as separate files. Newsletter Editor **Vicki Saunders**.



BATTLE POINT ASTRONOMICAL ASSOCIATION  
P. O. BOX 10914  
BAINBRIDGE ISLAND, WA 98110

## 10–Spring 2011 BATTLE POINT ASTRONOMICAL ASSOCIATION

206.842.9152 <http://www.bpaastro.org/>  
Ritchie Observatory, Battle Point Park  
P.O. Box 10914, Bainbridge Island, WA 98110

### Officers

**Stephen Ruhl, President**  
206.855.7883, [president@bpaastro.org](mailto:president@bpaastro.org)  
**Mike Browning, Vice President**  
206.861.1630, [bjjm@qwest.net](mailto:bjjm@qwest.net)  
**Russell M. Heglund, Secretary**  
206.842.8758, [rmheglund@yahoo.com](mailto:rmheglund@yahoo.com)

**Frank Schroer, Treasurer**  
206.842.1974, [frank@schroer.net](mailto:frank@schroer.net)  
**Nels Johansen, Facilities Officer**  
206.842.7968

**David Fong, Education Officer**  
217.493.1665, [education@bpaastro.org](mailto:education@bpaastro.org)  
**Malcolm Saunders, Chief Astronomer**  
206.780.1905, [astronomer@bpaastro.org](mailto:astronomer@bpaastro.org)

### Founders

**Edward M. (Mac) Gardiner, President Emeritus**  
206.842.3717, [macg@bainbridge.net](mailto:macg@bainbridge.net)

**Ed Ritchie, Chief Astronomer**  
1993–1997

**John H. Rudolph, Facility Director**  
1993–2003

*BPA*A would like to thank  
  
*for their  
generous  
support*

-serving our community since 1960