

The ECLIPSE

March
2015

The Newsletter of the Barnard-Seyfert Astronomical Society

Next Membership Meeting:

March 18, 2015, 7:30 pm
Cumberland Valley
Girl Scout Council Building
4522 Granny White Pike

Topic: *SWAP: The Southwest
Astrophotography Seminar report*

Details on page 4

From the President:

Astronomy enthusiasts have a strong interest in the dark night sky. To be able to see things beyond the opaque windshield of the daylight atmosphere, we need as little stray light as possible at night. Our ancestors took the dark for granted, and were familiar with the patterns they saw in the night sky.

Ralph Waldo Emerson wrote more than 100 years ago: *"If the stars should appear one night in a thousand years, how would men believe and adore; and preserve for many generations the remembrance of the city of God which had been shown! But every night come out these envoys of beauty, and light the universe with their admonishing smile."* Yet with every passing year we remove more and more stars from our sight, making the night into day for no better reason than we are wealthy enough to waste resources lighting up space. We also share the world with creatures who are awake while we are asleep...creatures who need the night. Increasingly there is evidence that we need the night to be healthy as well.

A change is coming... new LED lighting will be coming to a street near you within the next few years. Cities are converting because it promises to save them money. Unfortunately, you can do it wrong as easily as right. Don't let this happen to Nashville:

My city (Redmond, CA) recently installed new 4000K LED street lights throughout my neighborhood to replace old HPS street lights. While they were at it, they decided to double the

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Observing Highlights March and April

Open Clusters

NGC884/869
(*Double Cluster*),
M34, M45 (*Pleiades*),
M36, M37, M38, M35, M41,
M50, M47, M46, M93, M48,
M44 (*Beehive*), M67,
NGC2264 (*Christmas Tree*)

Nebulae

NGC1499 (*California*), M1,
M42 (*Orion*), M43, M78,
NGC2392 (*Eskimo*),
NGC3242
(*Ghost of Jupiter*),
M97 (*Owl*)

Globular Clusters

M79

Variable Stars

Beta Persei (*Algol*),
Omicron Ceti (*Mira*),
R Leporis
(*Hind's Crimson Star*)

Galaxies

M31 (*Andromeda*), M32,
M110, M33 (*Triangulum*),
M74, M77, M81, M82,
NGC3115 (*Spindle*), M95,
M96, M105, M108,
M65/M66/NGC3628
(*Leo Triplet*),
M109

Multiple Star Systems

Gamma Andromedae,
Beta Orionis (*Rigel*),
Alpha Geminorum (*Castor*)

Upcoming Star Parties

Sat 3/14 8-10 pm	Long Hunter State Park
Sat 3/21	Private Star Party Natchez Trace Parkway mile marker 412 (Water Valley Overlook)
Sat 3/28 8-10 pm	Shelby Bottoms Nature Center
Sat 4/25 8:30-10:30 pm	Edwin Warner Park



Mar 20
Apr 18



Mar 27
Apr 25



Mar 5
Apr 3



Mar 27
Apr 11

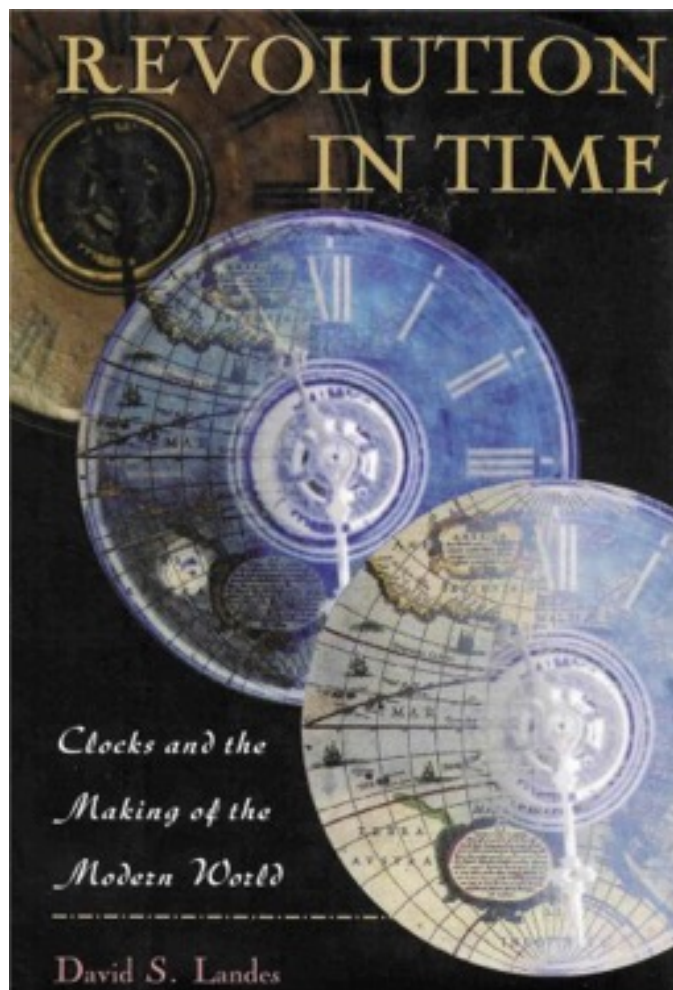
Book Review: Revolution in Time reviewed by Robin Byrne

Let us once again peruse ye olde bookshelf for a book review. "Revolution in Time: Clocks and the Making of the Modern World" by David S. Landes was published in 1983. However, since it focuses on the history of watches, being an older book doesn't affect the information very much.

The author, David Landes, is an economist who collects old watches, and those two areas of interest definitely influence his approach to this subject. Be prepared for plenty of arcane watch terminology plus a hefty dose of world economics. You also may want to brush up on various languages (Latin, French and German, to name a few), since Landes enjoys throwing in an occasional word or phrase without translation.

Landes organizes the book into four main themes. He begins by exploring the transition from sundials for keeping time, along with gear driven devices designed for entertainment, to actual gear driven time keepers, typically powered by falling water. This early section is when you are first introduced to various watch parts and their names. If you really want to keep up, I'd recommend taking notes. I did not do that, so the fine nuances of each part's development floated past me like so much fluff. I was fine with that. It was during this section that I became annoyed that the illustrations were on separate glossy pages, far from the text that references each illustration. Combining the illustrations along with the text would have been much better, even if they could not be printed with as high of quality.

Once actual clocks are being manufactured, the next section focuses on accuracy of



time pieces. The main driving force behind this endeavor was for astronomical and navigational uses. This was especially important for determining longitude at sea (see Dava Sobel's "Longitude" for an excellent discussion of that saga). Many people were involved with improving clocks, and we encounter each one and their particular contributions. We meet many rivals, nationalistic endeavors for supremacy, suspicion, jealousy, and even fraud, as each man strives to lay claim to creating the most accurate clock. While John Harrison was awarded the prize for a clock that could run accurately at sea, his design was so intricate that it was not practical to mass produce. That was the

Revolution in Time, continued from page 3

next goal, and many people helped develop smaller clocks (and, eventually, pocket watches) that were both accurate enough to use at sea, while being easy enough to produce in large quantities.

The process of creating better watches, in large numbers, takes us into the world of business. Here, Landes explores each major country and their manufacturing processes. Various European nations laid claim to quality watch-making at different times, and Landes looks at each in detail. England, France, Germany, Switzerland, and Geneva each went through eras during which they were considered the best watch-makers in the world. Landes takes us on the journey from a cottage industry where one man made the watch from start to finish, to later developments of using machine presses to make generic parts that could be used by multiple manufacturers. At this point, a single watch is made by several people, each of whom specializes in one step of the process. It is also during this time that watches are being exported to other countries, which creates unwanted competition in countries already making their own watches. Many companies do not survive, while others become established as the world's standard. The United States enters into the story near the end. Despite some poor business practices, American watches take over in the market of affordable wrist watches, especially by Timex. Meanwhile, Swiss watches continued to be considered the best made watches, but at a price.

The end of the book explores the rise of digital watches run by quartz crystals. Many traditional watch makers shunned this new technology, and, subsequently, lost out on a rising market. However, Japan and Hong Kong quickly rose to dominate the digital watch market. Being published in 1983, digital watches were at their height of popularity. It brought to mind the following passage from "The Hitchhiker's Guide to the Galaxy" by Douglas Adams: "Far out in the uncharted backwaters of the unfashionable end of the Western Spiral arm of the Galaxy lies a small unregarded yellow sun. Orbiting this at a distance of roughly ninety-eight million miles is an utterly insignificant little blue-green planet whose ape-descended

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Next BSAS meeting
March 18, 2015, 7:30 pm
Cumberland Valley
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Topic: Theo Wellington: The Southwest Astrophotography Seminar Report

A three day seminar at the end of October on everything you always wanted to know about astrophotography! For everyone, especially beginners, I'll talk about some of the highlights of the talks: the tips, software, and other topics that were covered at the meeting that spanned a huge number of topics, from DSLR photography to outreach. I learned a lot and I hope to pass a little bit of that on. We also took a side trip up Mt. Lemmon to visit Adam Block at the telescope. Much like the Northeast Astro Imaging Conference prior to the NEAF event in April, this was followed by a vendor expo with all the fun gear you could want. A great seminar near some of the dark skies in the US.

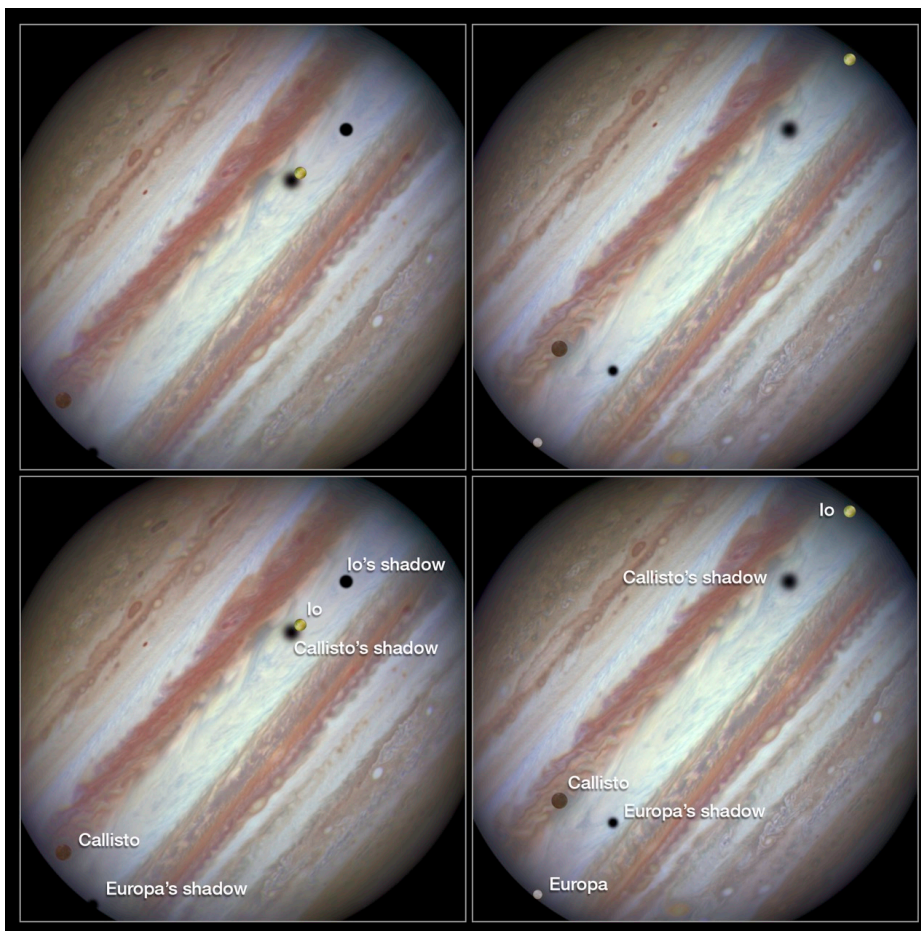
Revolution in Time, continued from page 4

life forms are so amazingly primitive that they still think digital watches are a pretty neat idea.”

Today, many people don't even wear a watch, instead using their cell phone as their portable timekeeper. As Landes described all the wondrous features of digital watches (ability to display times in more than one time zone, alarms, and calculators), I wondered what he would have thought if someone told him that 30 years later there would be devices that could tell the time, be used as a phone, could access unlimited information, take pictures and movies, play music, and could perform more functions than a computer of 1983 could even dream of. Would he have been amazed or incredulous?

“Revolution in Time: Clocks and the Making of the Modern World” is not an easy read. Parts of it are a tedious slog through more details than you'd ever want to know about watch parts, while other sections are an interesting story of the people and history of the watch-making industry, and then back to a slog through economic theory and its applications to the watch industry. Overall, not a well-balanced book. Depending on where your interests are will ultimately determine if this book is worth your time.

Revolution in Time: Clocks and the Making of the Modern World by David S. Landes; The Belknap Press of Harvard University Press, 1983



These new [NASA/ESA Hubble Space Telescope images](#) capture a rare occurrence as three of Jupiter's largest moons parade across the giant gas planet's banded face. The image on the left shows the Hubble observation at the beginning of the event. On the left is the moon Callisto and on the right, Io. The shadows from Europa, which cannot be seen in the image, Callisto, and Io are strung out from left to right. The image on the right shows the end of the event, approximately 42 minutes later. Europa has entered the frame at lower left with slower moving Callisto above and to the right of it. Meanwhile Io — which orbits significantly closer to Jupiter and so appears to move much more quickly — is approaching the eastern limb of the planet. Whilst Callisto's shadow seems hardly to have moved Io's has set over the planet's eastern edge and Europa's has risen further in the west. NASA, ESA, Hubble Heritage Team

From the President, continued from page 1

number of street lights. Literally we have 100% more street lights on top of the change from orange to blue LED lighting.

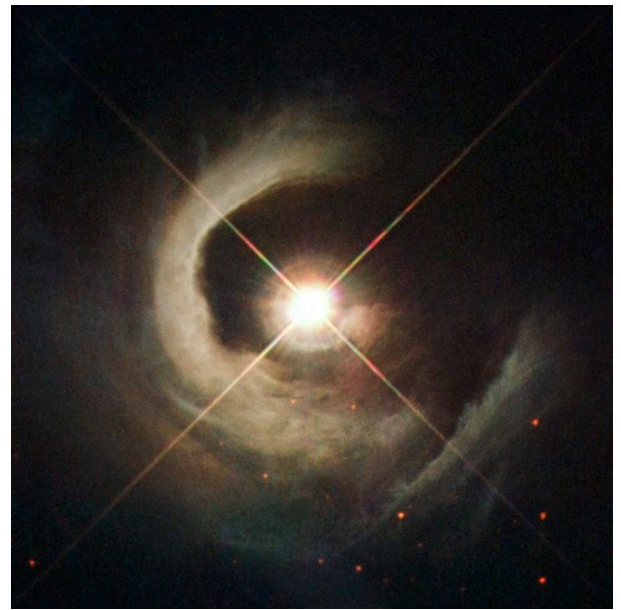
This has happened before...when a new product saves energy or money, people want to use more instead of pocketing all the savings! The LED lights will appear brighter because they are much bluer than the old lights. They CAN, however, be dimmed, while current lighting cannot. So there is both peril and promise in the coming conversion. We have a window of opportunity to sell the idea that too much light is bad all around, and that proper lighting is good for security, safety, the environment, and incidentally you can then see the entire rest of the universe as well.

Write your council person. Write the Mayor. Write the "[Office of Sustainability](#)" We need to get more people involved before either Public Works or NES makes the decisions for us. We'll be living with the lights for a long time, so let's do it right! Look at the citizen science campaign [Globe at Night](#) to learn how you can help document and track light pollution.

Hope we defrost by the next star party,
March 14 at Long Hunter State Park...

Clear dark skies,

Theo Wellington



With its helical appearance resembling a snail's shell, this reflection nebula seems to spiral out from a luminous central star in this new NASA/ESA Hubble Space Telescope image.

The star in the centre, known as V1331 Cyg and located in the dark cloud LDN 981 — or, more commonly, Lynds 981 — had previously been defined as a T Tauri star. A T Tauri is a young star — or Young Stellar Object — that is starting to contract to become a main sequence star similar to the Sun.

What makes V1331Cyg special is the fact that we look almost exactly at one of its poles. Usually, the view of a young star is obscured by the dust from the circumstellar disc and the envelope that surround it. However, with V1331Cyg we are actually looking in the exact direction of a jet driven by the star that is clearing the dust and giving us this magnificent view.

This view provides an almost undisturbed view of the star and its immediate surroundings allowing astronomers to study it in greater detail and look for features that might suggest the formation of a very low-mass object in the outer circumstellar disc.

Credit:

[ESA/Hubble, NASA, Karl Stapelfeldt \(GSFC\), B. Stecklum and A. Choudhary \(Thüringer Landessternwarte Tautenburg, Germany\)](#)

**Barnard-Seyfert Astronomical Society
Minutes of the Regular Meeting of the Board of Directors
Held On Wednesday, February 4, 2015**

The regular meeting of the Board of Directors of the Barnard-Seyfert Astronomical Society was held February 4, 2015, at the Girl Scouts of Middle Tennessee, 4522 Granny White Pike, Nashville, TN 37204. Present were Joe Boyd, Gary Eaton, Bud Hamblen, Jeffrey Horne, Bob Norling, and Theo Wellington, constituting a quorum. Theo Wellington called the meeting to order at 7:30 PM, and asked for a motion to approve the minutes of the January 7, 2015, board meeting. Bob Norling so moved, Joe Boyd seconded, and the minutes were approved as printed in the February, 2015, issue of the Eclipse. Bob Norling reported that there was \$1,637.64 in the regular account and \$1,724.33 in the equipment account.

There was discussion of upcoming astronomy-related events. Friends of Bell Bend Park is holding an Outdoor Recreation Expo at Bells Bend Park on April 11, 2015, from 9 AM to 3:30 PM, which offers an opportunity for outreach and solar observing. Over 1,000 people visited the park during the 2014 event. An Earth Day celebration is scheduled for Centennial Park April 18, 2015, and an Astronomy Day event is scheduled for April 25, 2015, both offering opportunities for outreach and solar observing.

Public star parties are planned for Pickett State Park, 4601 Pickett Park Hwy, Jamestown, TN, from March 20-22. Heated accommodations are available and Friends of Pickett State Park will be providing food for participants.

Bob Norling reported that he had received email from the shipping company about the RASC Observer's Handbooks we had ordered stating that the location of the books was uncertain. [Secretary's note: the books have arrived!]

Respectfully submitted,

Bud Hamblen, Secretary

**Due to poor weather, there was no BSAS membership meeting
for February 2015.**

Outreach Opportunities

Boy Scouts: The Boy Scouts are training Scout leaders at an event called “University of Scouting.” They have asked if the BSAS would like to have a table in the vendor hallway at this event. If you would be available on Saturday March 14th, the hours for the whole event are 7:30am to 4:30pm at Holy Family Catholic Church in Brentwood. If you would like to do this in whole or in part, let Theo Wellington know! This is a good way to get information about BSAS to the local scouts. (We have an afternoon volunteer...can anyone do the morning?)

Cub Scout STEM Camp: Please let me know if you would like to help and I will forward the contact information: “I’m reaching out on behalf of Cub Scout Pack 320. We have approximately 75 scouts based out of Brown’s Chapel Elementary in Murfreesboro. I’m planning a large camp-out in May that is going to have a STEM (Science, Technology, Engineering, Mathematics) orientation. The theme is going to be Star Wars and I realized that your group holds “Star Parties”. I wanted to see if one or several of your members would be willing to join us at Camp Craig on the Boxwell Scout Reservation on Friday night, May 1st to hold a small “Star Party” for the scouts and to give them an introduction to astronomy.”

Blue Moon Wedding: If you would be interested in taking a telescope to a wedding on the night of July 31st (yes, full Moon) we’ve been asked if anyone is interested in showing the Moon to guests at the reception out in the country east of Murfreesboro. Could be fun!

Bells Bend Outdoor Recreation Festival: A daytime event on Saturday April 11. Bring a solar telescope or just come ready to introduce BSAS to a new group of fans! A fun way to meet people who also enjoy one of our favorite parks and let them know they can find us there at night.

Member Highlight: BSAS Member Loren Ball was recently awarded his 106th asteroid discovery by the Minor Planet Center! Loren’s Emerald Lane Observatory is 100th on the list of top discovery sites recognized by the MPC.

Become a Member of BSAS!

Visit bsasnashville.com to download and print an application for membership.

All memberships have a vote in BSAS elections and other membership votes. Also included are subscriptions to the BSAS and Astronomical League newsletters.

Then fill it out and bring it to the next monthly meeting or mail it along with your first year's membership dues to:

BSAS
P.O. Box 150713
Nashville, TN 37215-0713

Annual dues:

\$20 Individual
\$30 Family
\$15 Senior (+65)
\$25 Senior Family (+65)
\$12 Student*

* To qualify as a student, you must be enrolled full time in an accredited institution or home schooled.

You can check the status of your membership at bsasnashville.com.

There will be a two month grace period before any member's name is removed from the current distribution list.

About BSAS

Organized in 1928, the Barnard-Seyfert Astronomical Society is an association of amateur and professional astronomers who have joined to share our knowledge and our love of the sky.

The BSAS meets on the third Wednesday of each month at the Cumberland Valley Girl Scout Building at the intersection of Granny White Pike and Harding Place in Nashville. Experienced members or guest speakers talk about some aspect of astronomy or observing. Subjects range from how the universe first formed to how to build your own telescope. The meetings are informal and time is allotted for fellowship. You do not have to be a member to attend the meetings.

Membership entitles you to subscriptions to *Astronomy and Sky & Telescope* at reduced rates; the club's newsletter, the *Eclipse*, is sent to members monthly. BSAS members also receive membership in the Astronomical League, receiving their quarterly newsletter, the *Reflector*, discounts on all astronomical books, and many other benefits.

In addition to the meetings, BSAS also sponsors many public events, such as star parties and Astronomy Day; we go into the schools on occasion to hold star parties for the children and their parents. Often the public star parties are centered on a special astronomical event, such as a lunar eclipse or a planetary opposition.

Most information about BSAS and our activities may be found at bsasnashville.com. If you need more information, write to us at info@bsasnashville.com or call Theo Wellington at (615) 300-3044.

Free Telescope Offer!

Did someone say free telescope? Yes, you did read that correctly. The BSAS Equipment & Facilities Committee has free telescopes ranging in size from 2.6" to 8" that current members can actually have to use for up to 60 days at a time. We also have some other items in the loaner program such as a photometer, H-alpha solar telescope, educational CDs, tapes, DVDs, and books. Some restrictions apply. A waiting list is applicable in some cases. The BSAS Equipment Committee will not be held responsible for lost sleep or other problems arising from use of this excellent astronomy gear. For information on what equipment is currently available, contact info@bsasnashville.com.



Astronomy weekend
Pickett CCC Memorial State Park
March 20-22 2015

March 20

Arrive- 4 p.m.

Eat on your own

Star party starts at 8 p.m.

Plan on coming rain or shine. We will have plenty to do.

March 21st

Breakfast on your own

10 a.m.- hike into Pogue Creek Canyon 1.7 miles

12:00- Lunch

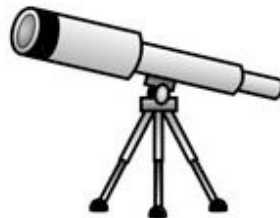
1-3 p.m.- Solar observing

5 p.m.- Supper

8 p.m.- Public Star Party

March 22nd

Clean up and check out at 10 a.m.



The observing field does not have electricity, but an extension cord can run from the bunk house to a location near the group camp. We can turn off any lights on the buildings and street lights so any observations near the buildings will not be obscured by light pollution. There is heat in all the buildings including all the bunkhouses and dining hall. There are six bunkhouses with 12 bunk beds in each building.

What to bring:

Bedding- blankets, sheets, pillows

Bath towels and linens for kitchen use

Toilet tissue

Bath soap



Food- We will try to provide one meal, but you will need to bring food for some meals and snacks. There is a walk-in refrigerator and regular refrigerator located in the dining hall.

Please contact Monique Johnson Hodge for more information and to sign up at monique.johnson@tn.gov or 931-319-0580. Please leave a message and she will get back with you as soon as possible.