
NOVAC
THE NEWSLETTER OF
THE NORTHERN VIRGINIA
ASTRONOMY CLUB
MARCH 2014

# The Weekend John Dobson Visited NOVAC by Mike Lewis

On January 15, 2014, John Dobson departed this earth leaving us to reflect upon his long life and many contributions to amateur astronomy. According to a posting on his Facebook page, he kept his characteristic sense of humor even during his final moments in the hospital. Reportedly, when asked by Admissions if he was allergic to anything, he was observed to reply, "The Big Bang."

As NOVAC remembers John Dobson, I would like to offer some thoughts on his visit to Washington, DC and NOVAC nine years ago.

For John Dobson, 2005 was just another year of celestial evangelization, like so many others since he helped found the San Francisco-based Sidewalk Astronomers in 1968. However, to his fans—including the members of NOVAC—it was a special time. That summer, the former chemist and Vedanta monk was profiled in a 78-minute documentary video, *A Sidewalk Astronomer*—raising the profile of amateur astronomy worldwide. In September, the man who revolutionized modern amateur astronomy celebrated his 90th birthday. And a few weeks later, he graciously accepted NOVAC's invitation to speak at our 25th anniversary year Star Gaze.

To many—including the casual observer—John Dobson was an inspiration for millions to stargaze. "Possessing a quicksilver wit, a gift for turning a phrase that makes scientific concepts accessible, and an energy that belies his nearly 90 cycles around the sun, Mr. Dobson is one of history's greatest popularizers of science," wrote *The Wall Street Journal* in September 2004. But to amateur astronomers of the last four decades, John Dobson was more than a motivational speaker. He made it possible for many of us to peer deeper into space from our backyards than ever before.

*John Dobson at NOVAC Star Gaze (October 1, 2005)* PHOTO CREDIT: WALT STONEBURNER)

*Continued on p. 2*

## The Weekend John Dobson Visited NOVAC *Continued from p. 1*

For more than a few in NOVAC, it was exciting to have this icon of astronomy join our ranks for the first time in the fall of 2005. For three days, NOVACers Alex Lim, Pete Johnson and myself took turns as Mr. Dobson's chauffeur, tour guide and host. This was a rewarding experience for each of us in different ways.

As the club's speaker coordinator that year, I got the job of greeting John Dobson upon his arrival at Reagan National Airport on September 30, 2005. He traveled alone, carrying only a small duffle bag and a jacket. I must admit I was a bit intimidated. What do you say to the man who revolutionized amateur astronomy? So, I played it safe and kept to small talk. He was quiet until sitting down in my minivan. "Where's my handle?" he asked, noticing there was no handle above the passenger door. "Next time get me a handle!" I smiled and we began talking about Abraham Lincoln and his interest in astronomy. After a quick vegetarian lunch, he and I headed down to the National Air and Space Museum for a 5-hour special tour arranged by fellow NOVACer Sean O'Brien, staff astronomer of the NASM Einstein Planetarium.

Sean and Dr. David DeVorkin, senior curator of history of astronomy and the space sciences, escorted Dobson up to William Herschel's giant 20-foot reflecting telescope. Herschel's tarnished copper-tin mirror, which was on display under a glass case, fascinated Dobson who asked many questions. Dr. DeVorkin also took Dobson over to the Hale telescope exhibit and around the corner for an up-close look at the towering Hubble Space Telescope back-up mirror. Although the NASM's I-Max movie Magnificent Desolation: Walking on the Moon 3D was already underway, we were allowed to slip in the back door for a glimpse. I guess we looked pretty funny sitting there with our large 3-D glasses. After ten minutes, Dobson said "let's go" and we resumed the walking tour which included the lunar lander on the first floor and the various space capsules. Dobson looked like a child in a toy shop. He possessed far more energy than any 90-year-old I'd ever seen and he gave us both quite a workout walking about the exhibits.


*John Dobson and Dr. David DeVorkin talk about the NASM's Herschel Mirror display*

*John Dobson watches as Guy Brandenburg prepares to polish a mirror at the NCA mirror making class. Fellow NOVAC member Pete Johnson (right) looks on.*

That evening I arranged with fellow NOVACer Guy Brandenburg to bring over Dobson for a visit to the National Capital Astronomers mirror making class. Dobson was in his element watching Guy and others apply pitch to the mirror grinding apparatus. To no one's surprise, the master mirror maker had a few thoughts of his own about the finer points of figuring the mirrors which he freely shared with the class. After the meeting, former NOVAC president Pete Johnson, a proud ATMer in his own right, took possession of Dobson and hosted him at his home in Centreville where they enjoyed some lively chats about the craft of telescope building—including Pete's 24-inch homemade Dob dubbed the "Giant Optical Device."

Pete transported Dobson to the Star Gaze the next day where several hundred club members had a chance to hear the telescope icon speak his mind on cosmology and telescope design. Dobson admitted that he didn't observe anymore as his eyesight was failing, but he had no

*Continued on p. 3*

The *NOVAC Newsletter* is the official publication of the Northern Virginia Astronomy Club and is published quarterly. The NOVAC Newsletter is available to members of NOVAC as a regular membership benefit.

**Membership**
Membership in the Northern Virginia Astronomy Club is $35.00 per year and is open to anyone interested in astronomy or the sciences. Additional memberships at the same address are $10.00 per person. Membership in the Astronomical League is free with NOVAC membership and includes the *Reflector* magazine plus access to their Observing Awards.

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**Submissions to the newsletter**
NOVAC members are invited to submit articles for publication in the *NOVAC Newsletter*. The editor reserves the right to edit all materials submitted. Send article submissions to the Editor, Chris Lee, at newsletters@novac.com.



## The Weekend John Dobson Visited NOVAC *Continued from p. 2*

trouble quickly steering Pete's large Dob to line up on Venus. Pete again hosted Dobson a second night before Alex Lim and I fetched him Sunday morning to prepare for his return flight to the West Coast.

*At the 2005 Star Gaze, John Dobson signs Esther Li's Dobsonian telescope while Alex Lim shows his signed photograph taken in 1981.*

Alex had a chance to visit with Dobson earlier Saturday when the telescope maker signed a photograph of the two of them that had been taken 24 years prior. As Alex explained it, he first contacted Dobson in 1981 while on a trip from the Philippines to San Francisco.

"I was impressed that John Dobson was very open to my visiting him in San Francisco. I called him from my hotel and asked for an interview for an article I was writing back then for the Philippine Astronomical Society. He told me to come right over and gave me directions to his place, even including which bus to take. He lived in a basement full of telescope making materials. He showed me a solar telescope, explained how it worked and gave me a sheet of paper with the design."

As we drove Dobson to Dulles that Sunday Alex and I again thanked the astronomy legend for having worked NOVAC into his busy schedule. Alex took him to his departure gate while I parked the van. My memory is a little fuzzy, but I am pretty sure Dobson reminded me before he left "to get him a handle" next time! ✶

To view John Dobson's speech at the 2005 NOVAC Star Gaze, visit this link:

http://tinyurl.com/lbyc96g

NOVAC members can borrow the 2005 DVD, *A Sidewalk Astronomer,* by contacting club librarian John Deriso at librarian@novac.com.

## Upcoming NOVAC Meetings

**March 9**
Timothy Livengood
Mars: A World Where Air Goes to Sleep at Night

**April 13**
Duncan Lorimer
Fast Radio Bursts

Monthly meetings are normally held at 7 p.m. on the second Sunday of each month (except for the month of May, when the meeting is held on the first Sunday) in Room 163 of the Research Building on the campus of George Mason University. More info at www.NOVAC.com.

## A Conversation With…

# Club Outreach Coordinator Elizabeth Erickson

By David Werth

*As a regular part of the* NOVAC Newsletter*, we present question and answer interviews featuring some of our clubs' notable members who will share their thoughts on different aspects of our mutual interest in astronomy. Club member David Werth interviewed NOVAC's Outreach Coordinator Elizabeth Erickson*

**NOVAC:** Elizabeth, I understand that you are a tax litigation attorney with a D. C. firm in addition to being a wife and mother. How in the world do you find time to enjoy your hobby of astronomy?

**Elizabeth:** I feel lucky to have my job, and I love my husband and my daughter, but I think you have to also make time for yourself and your own hobbies. Even in light polluted Falls Church, where I live, I still go out in my own backyard as often as I can to catch whatever planets are up, the moon, or some of the brighter Messier objects. Don't get me wrong, I wish I had more time – but I try to make the best of what I have!

In addition, our club makes it easy to enjoy this hobby: at my first club dinner (at Red Hot & Blue), I sat between Paul D. and Phil W. (how did I get so lucky?!) and they made me feel right at home. And now, I can't even count the number of friends and fun times I have had with NOVAC!

**NOVAC:** When did you first get interested in astronomy as a hobby?

**Elizabeth:** I have loved the idea of astronomy all my life – traveling into space, the planets, deep-space objects, all of it. But it really clicked when I first saw the rings of Saturn through a telescope – I was hooked! In fact, that is one of the reasons that I think outreach is so important. I was one of those kids that got to look through someone's telescope, and I saw something that amazed me and continues to amaze me even to this day – you never know when our club will provide that same moment for someone else.

**NOVAC:** What equipment are you using for observing?

**Elizabeth:** I have a 6 inch Celestron SCT, a Stellarvue 102APO, and an 80mm Lunt solar scope. In addition, this past Christmas I got Canon 15x50 IS binoculars – so far they are fantastic!

**NOVAC:** Are you doing any astrophotography?

**Elizabeth:** I am not. I am open to the idea of pursuing this at some point in the future, but right now I want to fully master my current equipment and better learn the night sky.

**NOVAC:** About a year ago, you took on the role as NOVAC's Outreach Coordinator. How has that role worked out for you so far?

**Elizabeth:** Our club makes my job as outreach coordinator easy – I am continually amazed at the enthusiasm and energy of

*Continued on p. 10*

# Tribute to Mike Mills by Mike Lewis

NOVAC is full of passionate observers. Many got their start back when the club was a bit smaller and folks liked to build their own scopes. Their devotion to sharing our beloved hobby with others helped to elevate NOVAC to become one of the largest observing clubs in America. Mike Mills was one of our stars.

When Mike first arrived at NOVAC's doorstep in early 1999 at the young age of 28, he jumped right in with both feet. He quickly logged many hours at the eyepiece and was an active participant in Messier Marathons. A Washington State native and the holder of a PhD from Northwestern, Mike worked at the Naval Research Lab in Washington, D.C. and then continued his career with the Mitre Corporation.

Through NOVAC, Mike applied his technical skills to the pursuit of mirror making and crafting well designed observing instruments. He found the challenge of figuring 6 and 8-inch mirrors particularly rewarding. In his mirror-making column in the May/June 2001 NOVAC newsletter, Mike explained why polishing glass was so alluring:

"I can envision mirror making becoming an addiction. The way a beautifully polished surface emerges from a plain disk of glass is magical. The realization that, using only hand tools, one can make a glass surface accurate to a few nanometers is intoxicating. Furthermore, the whole process has turned out to be a lot less complicated than I had feared. While you can't hope to simultaneously control all of the factors that affect the mirror, all you have to do is follow reasonable working habits and tackle any problems as they arise. There are two pearls of old mirror making wisdom that one should keep in mind: 'Anything you grind into the mirror, you can grind out again', and 'Grind more, worry less'. I definitely plan to grind more."

Mike didn't limit his passion to grinding mirrors, however. He skillfully edited the club newsletter from May 2000 to July 2003. Then-club president Ed Karch credited Mike with "improving the content and quality of the newsletter while reducing costs to the club." Mike first introduced members' astrophotography and high quality graphics to the publication. He also expanded observing content and began the transition to today's PDF format. His outstanding efforts were also noted by the Astronomical League which named him First Place winner of the "2001 Mabel Sterns Award".

We are sad to report that Mike passed away suddenly on September 8, 2013, at the age of 42. Former NOVAC president Bob Parks spent a lot of time observing with Mike.

"I've known Mike since I joined NOVAC in 1999. We made mirrors together at the Delmarva Mirror-Making workshop and we shared a passion for observing, testing mirrors and building telescopes. One of my favorite memories of Mike was of him and his son Gabe at AHSP 2008. We shared many hours under the dark skies of West Virginia observing, talking optics and tweaking our scopes to get the best views possible. His passing leaves a measurable hole in the cosmos and an inconceivable loss for his family."

We wish to express condolences to his wife, Kristine, and sons, Gabe (11), and Zachary (9). ✶

# Starbirth in the Neighborhood

*A Galaxy Blazes with Newborn Stars* By C.C. Petersen

Galaxies are huge collections of stars, gas, dust, black holes, and planets. The Milky Way is a good example of a spiral galaxy. It also happens to have a bar of gas and dust and stars across its center, and many places where stars are being born. It turns that when astronomers look at other galaxies, particular spiral galaxies (and many colliding galaxies), they also see regions of starbirth.

*The spiral galaxy M83 as seen by Hubble Space Telescope. Courtesy NASA/ESA*

Hubble Space Telescope has been astronomy's "go to" machine in space when astronomers want to look at something like a distant galaxy. This Hubble image shows the pinwheel (spiral) galaxy M83, which lies in our southern hemisphere skies in the constellation Hydra. It's about 15 million light-years away, and, as you can see here, is ablaze with starbirth regions spread across 50,000 light-years of space.

The pink blobs are the starbirth nurseries sitting on the edges of dark dust lanes. They are churning out hot young stars that are extremely bright in ultraviolet light. The UV radiation heats up surrounding clouds, and they are what we see glowing in hot pink (in this image). Those hot young stars are busily evaporating nearby gas clouds with their UV light. They emit strong winds which also disrupt their nurseries. Eventually, the starbirth crêche disappears, revealing the newborn star. Those hot young stars live short, energetic lives—perhaps existing only about 10 million years before exploding as supernovae. When they do die this way, the blast blows huge clouds of material out to space, blowing "bubbles" in space. HST has seen nearly 300 of these death bubbles. All this activity makes M83 a great place to study the dynamics of star birth, star death, and the contributions these events make to the galaxy.

It's not just professionals who are studying this galaxy. M83 is being used as a target for citizen science, too. The idea is to come up with estimated ages for around 3,000 star clusters in this galaxy. The project is called Star Date: M83, a collaboration between the Space Telescope Science Institute and Zooniverse, creators of several citizen science projects including Galaxy Zoo, Planet Hunters, and the Andromeda Project (go to www.zooniverse.org to see the full list). The M83 project is launched on Monday, January 13, 2014. If you're interested in participating, visit http://www.projectstardate.org .

What will you be asked to do? You and others will use the presence or absence of the pink hydrogen emission, the sharpness of the individual stars, and the color of the clusters to estimate ages. Participants will measure the sizes of the star clusters and any associated emission nebulae. Finally, you and your fellow citizen scientists will "explore" the image, identifying a variety of objects ranging from background galaxies to supernova remnants to foreground stars. If you've never done citizen science before, it's quite interesting to participate in. I was part of Galaxy Zoo for awhile, and the people who ran that project provided all the information we needed to start classifying galaxies by their shapes.

M83 is a gorgeous object, and I think that people who study it (professional and citizen scientists) will come away with an amazing insight into the lives and deaths of stars in this distant galaxy. ✶

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C.C. Petersen is a science writer, voice-over artist, and video producer. Find out more at her website, www.thespacewriter.com.

*This content distributed by the AAVSO Writer's Bureau*

# Staunton River Star Party

The Staunton River Star Party (SRSP) is fairly new, but has seen continued increase in attendance by its host club, the Chapel Hill Astronomical and Observational Society (CHAOS). The event is held twice a year, once in the Fall (October) and once in the Spring (March) with the Fall event being their largest. SRSP offers a 6 day (Tuesday – Sunday) and a 3 day (Friday – Sunday) sign up.

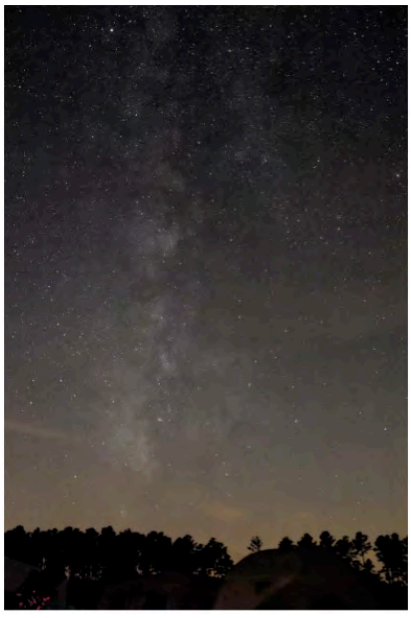
The October 2013 SRSP saw good attendance with almost 150 enthusiasts with a wide array of scopes ranging from refractors to 14 in. SCTs mounted in specialized trailers to 30 in. Dobs. The event is hosted at the Staunton River State Park in Southern Virginia, which is in a Blue sky area.

The large field has an unobstructed view 360 degrees around and provides power hooks ups and internet connectivity. The park also has a heated/cooled building adjacent to the field with restrooms and an activity room as well as a concession building that is open most of the night to provide snacks, food, and beverages.

The event hosts programs on Friday and Saturday with guest speakers, vendors, a swap meet and a raffle. The host organization, CHAOS has formed a very good partnership with the park and has even gotten the local town involved to work on preserving their dark skies. The field accommodates everything from tents

to RV's. Attendees are allowed to park next to their equipment and are given ample space. The park itself is large with an adjoining lake with boat access. The park is very kid friendly and offers a lot to explore in the daylight hours. ✶

http://www.chaosastro.com/starparty/



# A Two-Toned Wonder from the Saturnian Outskirts

By Dr. Ethan Siegel

Although Saturn has been known as long as humans have been watching the night sky, it's only since the invention of the telescope that we've learned about the rings and moons of this giant, gaseous world. You might know that the largest of Saturn's moons is Titan, the second largest moon in the entire Solar System, discovered by Christiaan Huygens in 1655. It was just 16 years later, in 1671, that Giovanni Cassini (for whom the famed division in Saturn's rings—and the NASA mission now in orbit there—is named) discovered the second of Saturn's moons: Iapetus. Unlike Titan, Iapetus could only be seen when it was on the west side of Saturn, leading Cassini to correctly conclude that not only was Iapetus tidally locked to Saturn, but that its trailing hemisphere was intrinsically brighter than its darker, leading hemisphere. This has very much been confirmed in modern times!

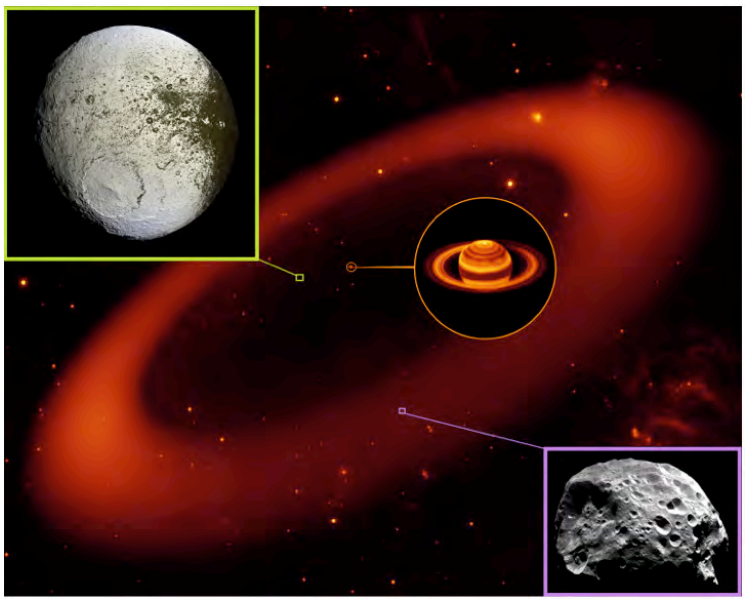
In fact, the darkness of the leading side is comparable to coal, while the rest of Iapetus is as white as thick sea ice. Iapetus is the most distant of all of Saturn's large moons, with an average orbital distance of 3.5 million km, but the culprit of the mysterious dark side is four times as distant: Saturn's remote, captured moon, the dark, heavily cratered Phoebe!

Orbiting Saturn in retrograde, or the opposite direction to Saturn's rotation and most of its other Moons, Phoebe most probably originated in the Kuiper Belt, migrating inwards and eventually succumbing to gravitational capture. Due to its orbit, Phoebe is constantly bombarded by micrometeoroid-sized (and larger) objects, responsible for not only its dented and cavity-riddled surface, but also for a huge, diffuse ring of dust grains spanning quadrillions of cubic kilometers! The presence of the "Phoebe Ring" was only discovered in 2009, by NASA's infrared-sensitive Spitzer Space Telescope. As the Phoebe Ring's dust grains absorb and re-emit solar radiation, they spiral inwards towards Saturn, where they smash into Iapetus—orbiting in the opposite direction—like bugs on a highway windshield. Was the dark, leading edge of Iapetus due to it being plastered with material from Phoebe? Did those impacts erode the bright surface layer away, revealing a darker substrate?

In reality, the dark particles picked up by Iapetus aren't enough to explain the incredible brightness differences alone, but they absorb and retain just enough extra heat from the Sun during Iapetus' day to sublimate the ice around it, which resolidifies preferentially on the trailing side, lightening it even further. So it's not just a thin, dark layer from an alien moon that turns Iapetus dark; it's the fact that surface ice sublimates and can no longer reform atop the leading side that darkens it so severely over time. And that story—only confirmed by observations in the last few years—is the reason for the one-of-a-kind appearance of Saturn's incredible two-toned moon, Iapetus! ✶

Learn more about Iapetus here: http://saturn.jpl.nasa.gov/science/moons/iapetus.

Kids can learn more about Saturn's rings at NASA's Space Place: http://spaceplace.nasa.gov/saturn-rings.



*Saturn & the Phoebe Ring (middle)—NASA/JPL-Caltech/Keck; Iapetus (top left)—NASA/JPL/Space Science Institute/Cassini Imaging Team; Phoebe (bottom right)—NASA/ESA/JPL/Space Science Institute/Cassini Imaging Team.*


***Blast from the past***—*This article originally appeared in the March/April 1994 issue of the NOVAC Newsletter.*

# Sky Sweep: the Messier Objects of the Late Winter and Early Spring Sky

by Kevin Jones

***From the Editor:*** *this issue's column focuses on the Messier objects currently visible in the evening sky, to assist those who are working toward a Messier Certificate or Binocular Messier Certificate. These certificates can be earned by observing any 70 or 50 of the 110 Messier objects respectively. For the the Binocular Messier Certificate, the objects must be observed with binoculars. Once you have located the required number of objects, send a copy to the Astronomical League's Observing Awards Coordinator as detailed in the Astronomical League's newsletter, the Reflector (Messier Certificate Observing Guides are available through NOVAC. See Paul Brewer al@novac.com for more info. ~Chris*

In the late winter and early spring, the winter Milky Way and its attendant star cluster are starting to set in the west as darkness falls. The January/ February [1994] issue examined seven of the Messier open clusters located near the winter Milky Way. The open cluster M46, M47, and M93 in Puppis and M48 in Hydra were omitted as they are all located on the eastern fringe of the winter Milky Way and remain readily visible in the evening sky into March and April.

The cluster M93 is found about 10 degrees east of Canis Major's hindquarters. M93 shines at 6th magnitude and is almost half an degree in angular diameter. The cluster contains about five dozen visible starts and is visibly quite rich. M93 is categorized a class g on Shapley's open cluster concentration scale, which ranges from class c for loose and star poor aggregates to class g for rich and concentrate cluster. This cluster is thought to be located about 3,000 light-years from the Solar System. At this distance, its angular size corresponds to an actual diameter of 20 light-years or so.

The pair of clusters M46 and M47 are northeast of Canis Major, due south of Procyon by roughly 20 degrees. Through small telescopes or binoculars, 5th magnitude M47 is obviously quite loose and coarse. It contains about 25 stars within its diameter of a third of a degree, and is a class d cluster. Its companion, M46, is only two degrees away to the east. At half a degree in diameter and glowing at 8th magnitude, M46 is larger and fainter than M47. M46 is a rich class f cluster, containing roughly 8 times as many stars as M47. The brighter M47 is also the closer of the two, about 2,000 light-years distant, while M46 is at least twice as far from the Solar System.

To find M48, another open cluster, imagine a line connecting the two bright stars that make up the constellation Canis Minor, and extend this line southeast roughly three times the distance between the two starts. This cluster is simpler in richness and angular size to M46 in Puppis, being class f and half a degree in diameter. But at 6th magnitude, M48 is considerably brighter because it is located only 2,000 light-years away — less than lat the distance to M46.

North of M48 are two Messier open clusters in Cancer, located well away from the main stream of the Milly Way. The small, 6th magnitude M67, located just west of Alpha Cancri, contrasts well with the larger, brighter, much more famous cluster M44 found farther north. M67 is a rich, compact cluster, containing several hundred stars within an area of sky a quarter of a degree across. M44, also called "Praesepe" or "the Beehive", is over a degree and a half in angular diameter and shines brightly at 4th magnitude. The Beehive can be seen without optical aid even under moderate light-polluted conditions. M44 is a relatively sparse, star-poor cluster, containing only a few dozen bright members. Its large angular size makes M44 an excellent target for binoculars. These six clusters are all fairly easy targets for a small pair of binoculars and are excellent targets for those pursuing Binocular Messier Certificates.

Leo the Lion is located immediately east of Cancer along the ecliptic and contains fuze Messier galaxies. The first three of these galaxies are located below the lion's mid quarters, just south of a line joining Regulus and Theta Leonis. M95, M96, and M105 are all bright and fairly easy targets for small telescopes. At 9th magnitude, M96 is the brightest member of the triplet. It is a nearly round Sa-type galaxy five arcminutes across. M95 is a 10th magnitude barred spiral located three-quarters

*Continued on p.10*

## A Conversation With… Elizabeth Erickson *Continued from p. 4*

our volunteers. The depth and breadth of experience in our club is amazing, and so many members are willing to share their time with other club members and the public.

**NOVAC:** Do you attend any outreach events yourself? Any memorable moments you can share?

**Elizabeth:** We get a lot of outreach requests, and as outreach coordinator, I don't actually attend most of them. (As a side note, I do get to see the wonderful thank you notes that many of the groups end up sending to our club. They are lovely, and I consider it one of the perks of the job!) Of course, I do attend some events, and it is hard to select a favorite. One event, however, that didn't turn out the way I expected, was an outreach last year that was held in the middle of Washington, DC. It was logistically tough to plan, and I ended up becoming a bit frustrated (and grumpy!) prior to the start of the event. However, once the event started, it was simply amazing. As usual, we had a number of helpful and patient NOVAC members at the event, with hundreds of people looking through scopes, asking questions, and oohing and aaahing at what they could see in the night sky. In some ways, the event wasn't any different from most of our outreach events, or even public nights. But, for some reason, I felt that on this night, at this event, we might have made that difference for some kid living in light-polluted-DC, who had never looked through any telescope, anywhere, ever before. It was a special night.

**NOVAC:** What do you have in your "Bucket List" for astronomy? Anything you haven't seen or done that you would like to do someday?

**Elizabeth:** Right now I am working my way towards the Astronomical League's Messier Program Certificate. Paul B. gave an AL presentation at one of my first meetings, and I knew this program was for me! It gives me a goal, and direction, in my observing.

My husband and I plan to retire in Maine, so I look forward to observing in some pretty dark skies well into the future! ✶

### 2014 Astronomy Events

**March 27th – 30th 2014**
Staunton River Star Party

**April 12th – 13th, 2014**
Northeast Astronomy Forum & Telescope Show

**May 31, 2014**
NOVAC Astronomy Day

**August 22 – 26, 2014**
Almost Heaven Star Party

**June 26 – 19, 2014**
Cherry Springs Star Party

**July 25th – 28th, 2014**
Green Bank Starquest

**Sept. 27, 2014**
NOVAC Star Gaze

**October 20 – 26, 2014**
Staunton River Star Party

Find more info at www.NOVAC.com

## Blast from the Past

*Continued from p. 9*

of a degree west of M96. M95 is about the same angular size M96, but is slightly more elongated. M105, the third galaxy in this tight grouping, is located three-fourths of a degree north-northeast of M96. M105 is a 9th magnitude El-type galaxy, two arcminutes is diameter. It is flanked on the east by two faint companion elliptical galaxies. These companions, NGC 3384 and NGC 3389, are both 12th magnitude and about three arc minutes in angular size. They are located eight arc minutes from M105.

M65 and M66, the remaining Messier galaxies in Leo, are located faith east, underneath Leo's hindquarters and directly between Theta and Iota Leonis. These galaxies make a tighter pair than the M95, M96, M105 group; M65 and M66 are separated by only a third of a degree, and glow brightly at 9th and 8th magnitudes respectively. A striking feature of these galaxies is their extensive elongation. M65 and M66 are both roughly eight by two arcminutes, elongated north-south. Half a degree north of this pair is another extremely elongated galaxy, NGC 3628. This 11th magnitude smudge of light is 12 by two arcminutes in angular size, elongated east-west. All three galaxies are spirals. All of these galaxies in Leo may be gravitationally bound and constitute the core of the Leo Group of galaxies. They are thought to be be about 30 million light-years distant.

Clear skies, and have fun observing these 10 Messier objects! ✶

*The January/February 1994 newsletter can be found at* http://tinyurl.com/m5op28m

## "To observe, and to help others observe"

**NOVAC is a non-profit, all-volunteer organization chartered to advance amateur astronomy in Northern Virginia. Member benefits:**

**Access to dark sky observing sites**
NOVAC maintains agreements that provide club members with year-round access to observing sites away from city lights. **www.novac.com/wp/observing/**

**Monthly meetings**
Monthly meetings are normally held at 7 p.m. on the second Sunday of each month [except in May when the meeting is held the first Sunday] in Room 163 of the Research Building on the campus of George Mason University. Each meeting features a lecture on an interesting topic by a local expert. See the meeting web page or future newsletters for a schedule of speakers. **www.novac.com/wp/outreach/meetings/**

**Quarterly newsletter**
The NOVAC newsletter provides information specifically for NOVAC members, as well as general interest articles on such topics as observing reports, equipment reviews, upcoming events, amateur telescope making (ATM) projects, and more.
**www.novac.com/wp/members/newsletter/**

**High-quality telescopes to borrow**
NOVAC members may borrow one of the club's several loaner telescopes at no charge. Members may choose from among three 6 in. reflectors, two 10 in. f/6 reflectors, an 8 in. SCT, and a hydrogen-alpha solar scope. Binoculars are also available for loan.
**www.novac.com/wp/members/loaner-scope/**

**Club website**
Up to date information about club events and activities is maintained on the club website at **www.novac.com**.

**Large club library**
NOVAC maintains a well stocked library from which members may borrow by contacting John Deriso (**librarian@novac.com**). A full list of titles is available on the club website.
**www.novac.com/wp/members/library**

**Private email listserv**
Members keep up with current club information by subscribing to the NOVAC email list, without fear of flame wars or spam emails.

**Public outreach opportunities**
Several times each year volunteers from NOVAC present astronomy programs to schools, churches, Scout troops and other public groups. Contact **outreach@novac.com** or fill out the outreach form on the NOVAC website to request a program or help in supporting an event. **www.novac.com/wp/outreach/outreach-form/**

**Membership in the Astronomical League**
Through NOVAC's membership in the Astronomical League (AL), NOVAC members gain access to the AL's newsletter, services and observing programs.
**www.astroleague.org**

**Discounts on astronomy magazines**
Subscriptions to *Sky & Telescope* and *Astronomy* magazines are offered to club members at a considerable discount.
Contact Kent Allingham: **membership@novac.com**

**Mentor Program**
Young or old, new or experienced, this program is for everybody. If you would like to meet with a mentor, think you would like to be a mentor, or have any questions about the program, contact: **mentor@novac.com**.

See your Membership Guide for more details about member benefits.
**http://www.novac.com/wp/members/**