

2016 Stellafane Convention

*The 81st Convention of Amateur Telescope Makers on Breezy Hill in Springfield, Vermont
43° 16' 41" North Latitude, 72° 31' 10" West Longitude*

Thursday, August 4 to Sunday, August 7, 2016

"For it is true that astronomy, from a popular standpoint, is handicapped by the inability of the average workman to own an expensive astronomical telescope. It is also true that if an amateur starts out to build a telescope just for fun, he will find before his labors are over that he has become seriously interested in the wonderful mechanism of our universe. And finally there is understandably the stimulus of being able to unlock the mysteries of the heavens by a tool fashioned by one's own hand."

—Russell W. Porter, Founder of Stellafane, March, 1923

SOME STELLAFANE HISTORY

In 1920, when a decent astronomical telescope was far beyond the average worker's means, Russell W. Porter offered to help a group of Springfield machine tool factory workers build their own. Together, they ground, polished, and figured mirrors, completed their telescopes, and began using them, soon becoming thoroughly captivated by amateur astronomy. By 1923 they had

formed a club, the Springfield Telescope Makers, and had built Stellafane, our now legendary clubhouse. In 1925 their activities drew the attention of Albert Ingalls, an editor at *Scientific American*. He visited the club, and soon began publishing articles by Porter and others about telescope making. This generated interest across the country, and the club decided to invite other amateurs to visit. On July 3, 1926, 29 people came to Breezy Hill, and The Stellafane Convention was established. It's been held every year since, except during the Second World War. The convention grew rapidly, and today around a thousand enthusiastic amateurs make the pilgrimage to Springfield.



STELLAFANE EAST

In 1986, faced with the loss of access to a neighboring field that had been the Convention's camping area, the STM, with the support of members who mortgaged their homes, purchased a 40-acre farm across the road from the original Stellafane site. This became known as Stellafane East. In 1998, STM member Harty Beardsley donated another adjacent 45 acres, ensuring that the Convention has room for growth.

THE MCGREGOR OBSERVATORY

The McGregor Observatory at Stellafane East was constructed by the club between 1989 and 1995. It houses a unique instrument—a 13" f/10 Schupmann telescope on a massive computer controlled alt-az mount. For a time it was the largest operating Schupmann in the world. This design, which combines reflective and refractive elements, yields a coma-free and essentially apochromatic image, and is ideal for planetary observation. The Schupmann is operated during Convention. Photo by Dennis di Cicco.



BE SURE TO VISIT THE ORIGINAL STELLAFANE SITE

Since so much of the convention takes place at Stellafane East, it's all too easy to miss the fun of seeing the original Stellafane clubhouse and the Porter Turret Telescope on Breezy Hill. Catch the shuttlebus near the food tent or the main camping area, or just take the short walk down the road opposite the entry "fruit stand" where you checked in.

The original site, including the pink clubhouse and the Porter Turret Telescope, was designated a National Historic Landmark in 1989. It remains the location for the Stellafane Convention's optical and mechanical competitions for amateur-built telescopes.

THE STELLAFANE CLUBHOUSE



The clubhouse was designed by Russell Porter and constructed by the members. The pink color may simply have been that of donated paint, but it has been hallowed by long tradition. Many fascinating memorabilia of the club's earlier days can be seen here. Although it's now a tight fit with today's larger membership roster, the Springfield Telescope Makers still hold some meetings at the Stellafane Clubhouse. Photo is from the 1930s.

THE PORTER TURRET TELESCOPE

The Porter Turret Telescope was constructed in 1930 by the club. Porter, who had endured more than his share of winter cold on polar expeditions early in his career, invented a design that allowed the observer to remain indoors and comfortable on the coldest winter nights. Extensively renovated including new optics in the 1970s, the Porter Turret remains an excellent instrument. Photo is from the 1930s.



EMERGENCIES AND FIRST AID AT CONVENTION:

In case of emergency please contact Security (by the gate) or any STM member. If you have a family service radio, you may contact convention staff via channel 7 (please avoid non-emergency use of this channel at convention). **First aid kits are located in the Bunkhouse, the McGregor Observatory, and the Pink Clubhouse.**
We have trained medical staff on site.

Schedule of Events and Presentations

KIDS=ACTIVITY FOR CHILDREN **TEENS**=ACTIVITY FOR TEENS **NTA**=FOR THOSE NEW TO ASTRONOMY **INT**=INTERMEDIATE **ADV**=ADVANCED
ATM=AMATEUR TELESCOPE MAKING **COMP**=TELESCOPE COMPETITION **ALL**=SUITABLE FOR EVERYONE **MCE**=MAJOR CONVENTION EVENT

PLEASE SEE DESCRIPTIONS ON FOLLOWING PAGES FOR MORE INFORMATION

THURSDAY, AUGUST 4, 2016

8:30 am - 5 pm	Hartness House Workshop: Sub-Arcsecond Spatial Resolution Imaging	Hartness House	Separate Registration and Fees for this Workshop
noon- 4 pm	Large RV Permit Holders must arrive	Entry Gate	Please don't arrive before noon!
3 pm - 10 pm	Early Entry Permit Holders can arrive	Entry Gate	Please don't arrive before 3!
6 pm - 8 pm	Hartness House Workshop: Sub-Arcsecond Spatial Resolution Imaging	Hartness House	Dinner (Separate Registration)

FRIDAY, AUGUST 5, 2016

9 am	Registration Gate Opens			
10 am - 6 pm	Shuttle Bus Operates	Bus Stops: Pine Island, Food Tent, Pink Clubhouse		
10 am - 4 pm	TELESCOPE MAKING DEMO	Organized by Ray Morits	ATM	
10 am - 10:30 am	Intro & Rough Grinding	Presented by Ray Morits	TENT north of Flanders Pavilion	ATM
10:30 am - 11 am	Fine Grinding	Presented by Rick Hunter	TENT north of Flanders Pavilion	ATM
11 am - 11:30 am	Making Dental Stone Tools (part 1)	Presented by Junie Esslinger	TENT north of Flanders Pavilion	ATM
11:30 am - noon	Making Pitch Laps	Presented by Phil Rounesville	TENT north of Flanders Pavilion	ATM
1 pm - 1:45 pm	Polishing & Figuring	Presented by Dave Groski	TENT north of Flanders Pavilion	ATM
2 pm - 4 pm	Testing (Bring your own mirror)	Presented by Dave Kelly	MIRROR LAB inside the Flanders Pavilion	ATM
11 am - noon	The Evolution of the Telescope	Flanders Pavilion	Presented by Carl Malinkowski	NTA
11 am - noon	Astronomy Activities for Children: Models of the Moon	McGregor Library	Ages 4-11	KIDS
1 pm - 2 pm	Solar Observing Hour	Observing Fields	Please set up your Solar Scope and Share	ALL
1 pm - 2 pm	Solar System Walk	Meet at Green Shed near Clubhouse	Presented by Jessica Johnson	NTA
1 pm - 2 pm	Observing Earth Satellites	McGregor Library	Presented by Rich Nugent	INT
1 pm - 2 pm	Constructing Large Binoculars	Flanders Pavilion	Presented by Paul Courtemanche	ATM
1 pm - 5 pm	Stellafane New Horizons Project (Requires Signup)	Bunkhouse	Presented by Paul Fucile	TEENS
2 pm - 3 pm	Astronomy in Motion	Flanders Pavilion	Presented by Al Takeda	INT
2 pm - 3 pm	Astronomy Activities for Children: Models of Comets (and Real Meteorites)	McGregor Library	Ages 4-11	KIDS
3 pm - 4 pm	Collimation and Maintenance of a Cassegrain-Type System	McGregor Library	Presented by Phil Rounesville	ADV
3 pm - 4 pm	Chasing Shadows: Getting Started as a Citizen-Scientist with Occultation Timing	Flanders Pavilion	Presented by Ted Blank	INT
3 pm - 4 pm	Breezy Hill Rocks!	Meet at Pink Clubhouse	Jessica Johnson A Geology Tour	ALL
4 pm - 5 pm	Human and Environmental Effects of LED Street Lighting	Flanders Pavilion	Presented by Mario Motta, M.D.	INT
4 pm - 5 pm	Introduction to Stellafane	McGregor Observatory Library	Presented by Kim & Dennis Cassia	ALL
5 pm - 8 pm	Hartness-Porter ATM Museum Open	Hartness House	Hosted by Bert Willard, Curator	ALL
5 pm - 8 pm	Telescope Competition Registration	Clubhouse	Optical and Mechanical Registration	COMP
5 pm - 7 pm	Free Time	Relax or Enjoy Dinner	No on-site talks or demos scheduled	ALL
7 pm - 8:30 pm	Friday Evening Videos	Flanders Pavilion	Astronomy documentaries for the whole family	ALL
8 pm - 9 pm	Astronomy in Motion	Near Domed Observatory	Presented by Al Takeda Demo	INT

8:30 pm –	Friday Evening Informal Talks	<i>Flanders Pavilion</i>	Bruce Beford, MC	Short presentations by Convention Attendees	MCE
10 pm	Registration Gate Closes				
10 pm	Telescope Competition Optical Begins	<i>Fields around Clubhouse</i>			COMP
SATURDAY, AUGUST 6, 2016					
7 am	Registration Gate Opens				
7 am - noon	Swap Tables	<i>Swap Table Area- North of Main Camping Area</i>			MCE
8 am - 9:30 am	Telescope Competition Registration	<i>Clubhouse</i>		Mechanical (and Optical if needed) Registration	COMP
9 am - 5 pm	Shuttle Bus Operates	<i>Bus Stops: Pine Island, Food Tent, Pink Clubhouse</i>			
10 am - 4 pm	TELESCOPE MAKING DEMO	<i>Organized by Ray Morits</i>			ATM
10 am - 10:30 am	Intro & Rough Grinding		Presented by Ray Morits	<i>TENT north of Flanders Pavilion</i>	ATM
10:30 am - 11 am	Fine Grinding		Presented by Rick Hunter	<i>TENT north of Flanders Pavilion</i>	ATM
11 am - 11:30 am	Making Dental Stone Tools (part 2)		Presented by Junie Esslinger	<i>TENT north of Flanders Pavilion</i>	ATM
11:30 am - noon	Making Pitch Laps		Presented by Phil Rounseville	<i>TENT north of Flanders Pavilion</i>	ATM
1 pm - 1:45 pm	Polishing & Figuring		Presented by Dave Groski	<i>TENT north of Flanders Pavilion</i>	ATM
2 pm - 4 pm	Dobsonian Basics		Presented by Ken Slater	<i>TENT north of Flanders Pavilion</i>	ATM
10 am - 11 am	Astronomy Activities for Children: Models of the Planets	<i>McGregor Library</i>		Ages 4-11	KIDS
10 am - 11 am	A Dipper Full of Stars	<i>Flanders Pavilion</i>		Presented by Richard Sanderson	NTA
10 am - 1 pm	Telescope Competition Mechanical	<i>Fields around Clubhouse</i>			COMP
10 am –	Telescope Field Walk	<i>Meet at Front of Clubhouse</i>		Led by Carl Malikowski	NTA
11 am - noon	Mirror Testing: See How It's Really Done	<i>Flanders Pavilion</i>		Presented by Douglas Arion, PhD	INT
11 am - 12:30 pm	Telescope Making For Teens	<i>Bunkhouse</i>		Presented by "Stargazer" Steve Dodson	Ages 12-16 ATM, TEENS
11 am - 12 pm	Introduction to Stellafane	<i>McGregor Observatory Library</i>		Presented by Kim & Dennis Cassia	ALL
1 pm - 2 pm	Where Have All The (Bright) Novae Gone?	<i>McGregor Library</i>		Presented by John O'Neill	INT
1 pm - 2 pm	Solar System Walk	<i>Meet at Green Shed near Clubhouse</i>		Presented by Jessica Johnson	NTA
1 pm - 2 pm	WD1145+017, A White Dwarf Destroying A Planet.	<i>Flanders Pavilion</i>		Presented by Mario Motta, M.D.	INT
2 pm - 3 pm	Astronomy Activities for Children: Models of the Sun	<i>McGregor Library</i>		Ages 4-11	KIDS
2 pm - 3 pm	Solar Observing Hour	<i>Observing Fields</i>		Please set up your Solar Scope and Share	ALL
2 pm - 3 pm	Taking ATM Techniques To The APO Level	<i>Flanders Pavilion</i>		Presented by Alan Ward	ATM, ADV
3 pm - 4 pm	An Introduction to Telescopes For All Ages Part 1	<i>McGregor Library</i>		Presented by Alan French	NTA
3 pm - 4:30 pm	The Science of Byurakan, The Golden Era of Soviet Astronomy	<i>Flanders Pavilion</i>		Presented by Larry Mitchell	ADV
4 pm - 5 pm	An Introduction to Telescopes For All Ages Part 2	<i>McGregor Library</i>		Presented by Glenn Chaple	NTA
4:30 pm - 5:30 pm	Observing Programs of the AAVSO	<i>Flanders Pavilion</i>		Presented by Kris Larsen	INT
6 pm - 7 pm	Free Time	<i>Relax or Enjoy Dinner</i>		No on-site talks or demos scheduled	ALL
7 pm	Saturday Evening Program & Keynote Talk	<i>Amphitheater (Flanders Pavilion if rain)</i>		Keynote, Shadowgram, Raffle & Awards	MCE
9 pm - 11:30 pm	Observing Olympics Pin Awards	<i>McGregor Observatory</i>		Pick up your Observing Olympics Pin	ALL
10 pm –	Telescope Optical Competition Begins	<i>Fields around Clubhouse</i>		Optical Competition (Only if not held Friday)	COMP

SUNDAY, AUGUST 7, 2016

8 am - noon	Convention Cleanup	<i>Please clean up around your campsite</i>		Please put trash in the dumpsters	ALL
9 am - 12 pm	Hartness-Porter ATM Museum Open	<i>Hartness House</i>		Hosted by Bert Willard, Curator	ALL

Event and Presentation Details

ACTIVITIES FOR TEENS & CHILDREN

These activities are specifically designed for children and teens, but please note that there are many other activities and talks in the sections below that young people will find rewarding.

For ages 4-11

There will be four 1-hour astronomy workshops for children; each session has a different activity. These astronomy workshops have been held at the Stellafane convention since 1995. Led by Dr. Kristine Larsen, Professor of Astronomy at Central Connecticut State University and a member of the Springfield Telescope Makers, each of the four 1-hour workshops includes several activities geared for children ages 4-11. Younger children are welcome but will need help from a parent.

Location: McGregor Observatory Library. Each workshop has a different astronomical theme. This year they are all related to our solar system. Due to space limitations, each workshop is limited to 20 children on a first-come basis. Latecomers may be turned away.

- **MODELS OF THE MOON—Friday 11 am to Noon.** Children ages 4 to 11 are invited to make models of the moon and its cratered surface to take home. Limited to 20 attendees.
- **MODELS OF COMETS—Friday 2 pm to 3 pm.** Children ages 4 to 11 are invited to make a model of a comet to take home, and will handle real meteorites (not to take home). Limited to 20 attendees.
- **MODELS OF THE PLANETS—Saturday 11 am to Noon.** Children ages 4 to 11 are invited to make scale models of the planets to take home. Limited to 20 attendees.
- **MODELS OF THE SUN—Saturday 4 pm to 5 pm.** Children ages 4 to 11 are invited to make a model of the sun to take home. Limited to 20 attendees.

For ages 12-16

- **BREEZY HILL ROCKS! Friday 3 pm - 4 pm,** Meet at Pink Clubhouse, presented by Jessica Johnson. In this geology tour, Jessica will give a brief, basic background on the overall geology of the area, and then guide the group around Breezy Hill, identifying some of the cool rocks and minerals that can be found.
- **STELLAFANE NEW HORIZONS PROJECT, Friday 1 pm - 5 pm,** in the Bunkhouse (green building north of food tent), presented by Paul Fucile.

This year our program will be modeling technology from the New Horizons probe which so spectacularly flew by Pluto in 2015. This will be a hands on class where the group will work together to construct a New Horizons inspired system that will be demonstrated at the Convention. Each participant will have the opportunity to fine tune or modify their take home project during a special dinner hour session.

Attendance will be first-come first-served. If you are 100% sure your teen will attend convention and will want to attend this event, then you'll need to get them on the list. Please email us directly at robots@stellafane.org. You will receive a manual reply to let you know your status.

When space is filled, we will add the next two names to a waiting list. If space is not filled through preregistration we will accept others first-come first served at the event, until the class is full. Special note: There will be a lot of specialized instruction so you will need to be on time!

- **TELESCOPE MAKING FOR TEENS, Saturday 11 am - 12:30 pm,** with "Stargazer Steve" Dodson, at the Bunkhouse. Under Steve's guidance, the group will build an 8-inch Dobsonian Newtonian telescope. Teens aged 12-16 who take part in the entire activity (stay the whole 90 minutes) will receive a special raffle ticket. The winner of the telescope will be drawn at the Saturday night program. You must be present to win and must take the telescope home with you (no shipping is available). Limited to the first 12 participants - so arrive early!

AMATEUR TELESCOPE MAKING

Mirror Making Demonstrations

Friday and Saturday 10 am- 4 pm (see specific times and topics in schedule on previous pages), tent north of the Flanders Pavilion. This is a HANDS-ON mirror making demonstration. Gain first-hand experience working on mirrors at every stage of grinding, polishing and testing. Experienced ATMs will help explain each step of the process and answer any questions you may have. The 24" mirror we have been working on for

several years will be available for grinding- please sign the log book when you work on it. **Bring your own mirror for testing between 2 and 4 pm Friday.**

Dobsonian Basics

2 pm - 4 pm Saturday, tent north of the Flanders Pavilion. Ken Slater, creator of the Stellafane Dobsonian described in the STM website, takes you through the basics of constructing a simple and inexpensive astronomical telescope that performs well and can be made with common hand tools.

Constructing Large Binoculars: To Bino or Not to Bino

Friday 1 pm - 2 pm at the Flanders Pavilion, Presented by Paul Courtemanche. Have you ever stood by two 10-inch Dobsonian telescopes, side by side, and wondered: What if...? This talk will cover my personal journey, from the conception to the design requirements, compromises, construction, and the unforgettable experiences, of building a 10-inch binocular telescope. There will be a chance to examine this instrument and ask questions, and since words don't come close to the actual experience, all are invited to come by the Pink Clubhouse at night and look through this one-of-a-kind instrument.

Taking ATM Techniques to the APO Level

Saturday 2 pm - 3 pm, in the Flanders Pavilion, presented by Alan Ward. This presentation captures the journey into the realm of design and construction of both a 6" f/15 and a 4" f/12 three-element oil-spaced apochromatic refractors, along with an analysis of the design criteria required to optimize for a visual instrument. From his personal perspective, Alan will share his remarkable account about the motivation, collaboration, knowledge, and experience acquired by a couple of passionate amateur telescope makers in their quest in building the ultimate refractor

FOR THOSE NEW TO ASTRONOMY

The Evolution of the Telescope

Friday 11 am - 12 pm in the Flanders Pavilion, presented by Carl Malinkowski. Join us as we explore the telescope and its evolution through out history. We'll explore the changes and the folks that helped bring them to fruition. We'll touch on some of the more peculiar designs and how the telescope's evolution has helped form our present knowledge of our universe today.

Solar System Walk

Friday and Saturday, 1 pm - 2 pm; meet at green shed near the Stellafane clubhouse. Presented by Jessica Johnson. To illustrate the vast size of outer space, the Springfield Telescope Makers have constructed a scale model of the solar system, based on the Sun being 12 inches in diameter. At that scale, the Earth would be approximately 1/10 of an inch in diameter and 107 feet from the Sun. Jupiter would be 1.2 inches in diameter and approximately 560 feet from the Sun. The Solar System Walk begins behind the Pink Clubhouse and proceeds down the road going towards the Stellafane camping area. At the appropriate distance from the scale model of the Sun, there are stations with the appropriate planet, built to scale, and a short description of each planet. The Solar System walk can be taken on your own at any time during the convention. However, a guided walk is available at the times mentioned above, when docent Jessica Johnson will provide additional information about the Solar System Walk and each particular planet. The walk takes approximately 45 minutes, if you walk all the way to the planet Neptune, with a total distance of 3,232 feet or a little over one half mile.

Introduction to Stellafane

Friday 4 pm - 5 pm and Saturday 11 am - 12 pm, at the McGregor Observatory Library, presented by Kim & Dennis Cassia. Are you familiar with these terms: "The Pink," "Tent Talks," or "The Turret"? If not, whether this is your first time attending the Stellafane convention or if you are returning and want to learn more about who the Springfield Telescope Makers are, as well as what is going on during the convention, then this presentation is for you. Topics include, but are not limited to: A short history of Stellafane, a description of our site, including the buildings and landmarks, descriptions of the scheduled talks and activities, services available at Stellafane, local services off site, etc., in addition to answering any questions you may have about the convention.

Telescope Field Walk

Saturday 10 am, meet at front of the Stellafane Clubhouse. Led by Carl Malinkowski. During the Telescope Field Walk experienced Amateur Telescope Makers will guide small groups through the fields around the Pink Clubhouse, where the telescopes that will be

participating in the mechanical competition will be set up. They will describe the various types of optical designs and mounting configurations that will be on display, point out the subtle details that go into award winning telescopes and be available to answer your questions.

A Dipper Full of Stars

Saturday 10 am - 11 am, in the Flanders Pavilion, presented by Richard Sanderson. Using stunning images of constellations, planets, and celestial objects, Richard Sanderson will lead an interpretive tour of the summer nighttime sky. He will describe how the sky appears to move throughout the night and from season to season, and explain the significance of the North Star. He will speculate about life on other worlds and show many of the prominent summer constellations. The presentation is aimed at beginners of all ages.

An Introduction to Telescopes For All Ages Part 1

Saturday 3 pm - 4 pm, in the McGregor Observatory Library, presented by Alan French. Adults and youngsters often become interested in astronomy and acquiring a telescope for exploring the heavens. With the plethora of telescopes on the market, buying your first telescope, or a telescope for a child, can be intimidating. In this program Alan French will cover telescope basics (types, mounts, and eyepieces), telescopes suitable for children.

An Introduction to Telescopes For All Ages Part 2

Saturday 4 pm - 5 pm, in the McGregor Observatory Library, Presented by Glenn Chaple, who will introduce you to what the novice can find and see with a common backyard telescope..

INTERMEDIATE LEVEL ASTRONOMY

Observing Earth Satellites

Friday 1 pm - 2 pm In the McGregor Observatory Library, presented by Rich Nugent. Every astronomer has, from time to time, noticed satellites crossing the night skies. From the dawn of the Space Age until now, low earth orbit has become quite cluttered with these easily observable and fascinating objects. Whether you are a beginner or a more seasoned amateur astronomer, this talk offers something for everyone. Topics include: observing basics, oldies but goodies, the ISS, the more challenging geostationary satellites, and Apps and web sites to make observing satellites fun and exciting.

Astronomy in Motion

Talk Friday 2 pm - 3 pm; Demo Friday 8 pm - 9 pm. Presented by Al Takeda. A single image captures an object in one moment. However, by adding the dimension of time, we can study how the object interacts with its surroundings. A single photo can be marvelous to look at, but movies can bring the subject to life. In his presentation, Al Takeda will discuss how to make motion pictures of astronomical objects. Topics will include the subjects that lend themselves to movement, the type of telescopes and lenses to use, cameras to use, and how to assemble the pictures to create a movie. Al will demonstrate some of these techniques in real time Friday evening only, using his own astroimaging system. The location for his demonstration will be next to the domed observatory.

Chasing Shadows: Getting Started as a Citizen-Scientist with Occultation Timing

Friday 3 pm - 4 pm, Flanders Pavilion, presented by Ted Blank. The steady stream of light from a star can occasionally be interrupted by the passage of an asteroid between the star and our eye or camera. This is called an occultation. Such an event can last from a fraction of a second up to a good portion of a minute (for large asteroids like Ceres). Measuring the duration of the star's disappearance turns out to be an inexpensive yet incredibly accurate way to measure the diameter of the asteroid. If the occultation event is recorded on video, tiny details in the light curve can also tell us a lot about the star. We can learn whether it is a binary system with components too close to be resolved optically, and the relative brightness of each. Asteroid ring systems have been discovered this way, as well as indications that some asteroids might have their own moons. In this talk, Ted will describe how you can get started measuring occultations. He will show the results of some recent measurements, describe the techniques and equipment used and demonstrate the free software tools available to let you know where and when to observe. Professional astronomers are waiting to use your measurements as an input to their studies of the Solar System's origins.

Human and Environmental Effects of LED Street Lighting

Friday 4 pm - 5 pm, Flanders Pavilion, presented by Mario Motta, M.D. Light pollu-

tion is becoming a significant problem across the globe as more people recognize the loss of our heritage of a beautiful night sky. In addition, over the past 20 years considerable evidence has accumulated that shows that the most important reason to control light pollution may be our own health. Newer LED lighting can be a solution but only if designed properly, and limited in excess blue emission. Light at night has been proposed as an explanation for the rise of certain human health issues, by glare and melatonin suppression. A considerable amount of research has firmly placed this concept on the map as a real and very vexing problem. While clearly it is not practical to imagine going back to a world without nighttime lighting, we can and should demand that night lighting have proper shielding, and that our night lighting is designed in a way to minimize deleterious human effects.

Mirror Testing: See How It's Really Done

Saturday 11 am - noon, in the Flanders Pavilion, Presented by Douglas Arion, PhD, You have read about mirror testing, but it's hard to visualize what it really looks like, and how it's actually done. In this session, we will demonstrate a variety of mirror testing techniques, where you can see, hands-on, how Foucault, Ronchi, and null testing are performed, what the shadows and patterns look like, and how to interpret them.

Where Have All The (Bright) Novae Gone?

Saturday 2:00 pm - 3:00 pm, McGregor Observatory Library, presented by John O'Neill. In the first half of the 20th century, seven bright novae were discovered. Since 1950 that figure is just one. In this talk, John will discuss the lack of recent bright novae discoveries and some of the possible explanations for this. Along the way, he will also touch on what novae are and how you might search for them. He will also recall the excitement of some of the bright novae discoveries of the past.

WD1145+017, A White Dwarf Destroying A Planet. How Pro-Am Collaboration Helped Solve A Mystery

Saturday 1:00 pm - 2:00 pm, Flanders Pavilion, Presented by Mario Motta, M.D. Last year analysis of data from the Kepler K2 mission uncovered a strange signal from a white dwarf star 570 light years away in Virgo. A grad student at Harvard, Andrew Vandenburg, decided to look deeply into the abnormal photometric flickering from this star, and realized he needed more info. Initially he used Kepler and Mt Whipple data, but quickly realized much more monitoring was needed. Andrew got several advanced amateurs to collect photometric data on this object over the winter and spring of 2016. Armed with that data, an amazing story of a star that is destroying a Ceres sized planetoid that is spiraling in to the star has emerged. For years it was not understood why some white dwarfs have heavy metal signatures in their spectra, an astronomical mystery. Now that we are catching a white dwarf in the act of "eating" a planet, with a similar spectral signal from the star, we seem to have a mechanism of how this develops and evidence that this not a rare event. Dr. Motta will describe the science of why this is occurring, and the importance of amateur professional collaboration in astronomy.

Observing Programs of the AAVSO

Saturday 4:30 pm - 5:30 pm, Flanders Pavilion, Presented by Kris Larsen. The president of the American Association of Variable Star Observers will describe the wide variety of the organization's observing programs, from visual binocular and telescopic observing through PEP, DSLR, and CCD (with a sneak peak of what is coming in the future).

ADVANCED LEVEL ASTRONOMY

Collimation and Maintenance of a Cassegrain-Type System

Friday 3 pm - 4 pm, McGregor Observatory Library, Presented by Phil Rounesville. Collimation and maintenance of a Cassegrain system does not require specialized skills. Professional optician Phil will give us the lowdown on the simple steps we can take to get the best performance from these instruments.

The Science of Byurakan, The Golden Era of Soviet Astronomy

Saturday 3 pm - 4:30 pm, Flanders Pavilion, Presented by Larry Mitchell. There is so much science that has come out of the Byurakan Observatory that it takes a while to adequately cover, and Larry is looking forward to sharing it with us. Viktor Ambartsumian was a genius, on Einstein's level, and his colleagues and followers were and are unbelievable astronomers and scientists. Their work is largely unknown in amateur circles in the west. A lot of the knowledge of the science of astronomy that we take for granted now was discovered by them years ago. The astronomers of Byurakan are still at it and are kindly assisting Larry now with this presentation by providing little known information.

OTHER PROGRAMS SUITABLE FOR EVERYONE

Breezy Hill Rocks!

3 pm - 4 pm Friday. A geology tour presented by Jessica Johnson. Meet at the Stellafane Clubhouse. College student Jessica Johnson will give a brief, basic background on the overall geology of the area, and then guide the group around Breezy Hill, identifying some of the cool rocks and minerals that can be found.

Solar Observing

1-2 pm Friday and 2-3 pm Saturday, in the observing fields near the Pink Clubhouse and the McGregor Observatory. All attendees with solar filters or projection set-ups are encouraged to share the sun with other attendees. The McGregor will be set up for solar observing as well.

The Porter/Hartness Museum of Amateur Telescope Making

Open Friday from 5 pm to 8 pm and Sunday from 9 am to noon. The Porter/Hartness Museum of Amateur Telescope Making is located in the underground rooms at the Hartness House Inn in Springfield. Admission is free. Follow the signs in town to the Hartness House at 30 Orchard Street. Many of the items on display are by or about Russell W. Porter, including the Springfield and Garden telescopes. His artwork traces his arctic exploration years to his work on the 200" Palomar telescope, culminating in his famous cutaway drawings. Other items of interest include early telescopes and mirror making parts. The Hartness turret telescope, with its 10" Brashear objective, may also be inspected.

Friday Evening Videos

Friday at 7 to 8:15 pm in the Flanders Pavilion. Short astronomy documentaries for the whole family.

FRIDAY EVENING INFORMAL TALKS

8:30 pm Friday evening in the Flanders Pavilion. Bruce Beford of the Springfield Telescope Makers will conduct the informal talks. If you wish to contribute a short talk during this session, please register online. Talks are limited to 10 minutes and 20 slides. The time limit will be strictly enforced! A 35-mm slide projector, overhead projector, VCR, and a digital projector will be available for your use. Note that if you plan to use the digital projector, you must bring your own laptop.

Advice, Guidelines, and Policies

To ensure your enjoyment and safety at The Stellafane Convention, please read this section carefully.

Emergencies and First Aid

In case of emergency please contact Security (by the gate) or any STM member. If you have a family service radio, you may contact convention staff via channel 7 (please avoid non-emergency use of this channel at convention). **First aid kits are located in the Bunkhouse, the McGregor Observatory, and the Pink Clubhouse.** We have trained medical staff on site.

Where to Set Up your Telescope

We strongly recommend that you set up your telescope in the fields around the Pink Clubhouse or in the field to the south of the McGregor Observatory. Your telescope does not have to be entered in the competition, and **all telescopes are welcome, commercial or homemade.** You may not set up your telescope in a designated parking area. The darkest conditions are available near the Pink Clubhouse, as far south as possible. Please consult the site map as well as the signs posted throughout the convention site for the designated parking locations. Note: You can drive up to the Pink Clubhouse area in daylight hours to drop off and pick up your telescope but there is no extended parking as space is extremely limited. Please move your car to a designated parking area at Stellafane East as soon as possible.

Lighting Policy

Stellafane does not allow open white lights on clear nights, except for one half hour after the Friday and Saturday evening talks end. Vehicular travel after this time is strongly discouraged and is done only at the risk of the operator. Red filter paper for flash-lights is available at the Pink Clubhouse and at the Bunkhouse. We thank you for your cooperation.

SATURDAY SWAP TABLES

7 am to noon Saturday. The Swap Tables (located at the northeast edge of the main camping/parking area) are provided to give amateurs an opportunity to trade, buy or sell their surplus astronomical and telescope related items. (**Important: see Swap Table Policy, Page 7**)

THE STELLAFANE RAFFLE

The famous Stellafane Raffle offers spectacular donated prizes to lucky winners, typically including thousands of dollars worth of optical gear and many desirable astronomy and telescope-making books. Your odds of winning are really good. The money raised goes to support next year's convention and to make capital improvements to the convention site. Tickets are available next to the T-shirt table (across from the food tent) and from designated STM members roaming the site. We appreciate the generosity of our donors, and your support by purchasing raffle tickets. Thank you all very much!

SATURDAY KEYNOTE PROGRAM

7 pm Saturday, in the hillside amphitheater. (In case of inclement weather, the program will be held inside the Flanders Pavilion). John Gallagher, of the Springfield Telescope Makers, will be master of ceremonies.

- Greetings, announcements, children's raffle and raffle drawing
- Stellafane Shadowgram: **You Never Forget Your First Time**, by Kristine Larsen, PhD
- Presentation of Telescope Competition Awards
- Stellafane Keynote Talk: **The Great North American Eclipse of 2017** by Fred Espenak, "Mr. Eclipse"

SUNDAY MORNING CLEANUP

8 am- 12 noon Sunday, please clean up around your campsite and parking area. All trash should be deposited in one of the large dumpsters by the Food Tent or Exit Lane. Please make sure there are no obstacles to grass mowing in the fields—any rocks, stakes, or other hazards should be returned to the woods or taken to the dumpsters. If you would like to take down rebar and string, we would appreciate that. Pile rebar and string on the side of the road, where it will be easy for us to find and pick up. Thnks!

Laser Pointer Policy

Lasers pointers can be a helpful tools for astronomers, but can be dangerous if not properly used. Direct viewing of a laser-pointer beam, even briefly and at a distance of a kilometer or two, has the potential to cause temporary blindness – the same effect you get right after a flash photo is taken – or afterimages. These effects last anywhere from seconds to minutes. Glare, which is a reduction or loss of central vision, lasts only as long as exposure to the beam. All these effects could be disastrous if they struck a person operating machinery, driving a car, or flying a plane.

To help use our laser tools safely, the Springfield Telescope Makers, Inc. has adopted these recommendations as policy. These are based on the suggestions from the Laser Institute of America and published in May 2005 by *Sky and Telescope*.

- **Laser pointers are designed to illuminate inanimate objects. Never shine a laser pointer toward any person, aircraft, or other vehicle.**
- **Never look directly into a beam of a laser pointer of any type.**
- **Do not allow children to use a laser pointer unsupervised. Laser pointers are not toys.**
- **If your telescope is equipped with a laser pointer that has a "constant on" setting, do not leave the instrument unattended with the laser switched on.**
- **Do not aim a laser pointer towards mirrors or other shiny surfaces. The reflected beam may inadvertently strike someone in the eye.**
- **Do not aim a laser pointer skyward if you hear or see an aircraft of any kind flying overhead.**

- Laser pointers shall not be used in the Clubhouse observing fields.
- Additional laser use restrictions may be put into place by the Springfield Telescope Makers, Inc. as situations arise.
- The convention staff, at its sole discretion, may terminate or prohibit use of lasers by any person on Springfield Telescope Makers, Inc. property.

Swap Table Policy

For the sake of historical continuity, to preserve the uniqueness of the Stellafane convention and to encourage conventioners to build their own instruments, the Springfield Telescope Makers, Inc. do not allow commercial sales, of any kind, at the Stellafane convention. All swap table sales must comply, in concept, with the above objective but are also specifically subject to the following criteria:

- Only surplus astronomical, telescope and telescope making related items may be sold.
- Each person will be allowed 16 square feet of table or ground space.
- Items which have the appearance of being specifically purchased or manufactured for sale at the Swap Tables may not be sold.
- All sales must take place within the designated Swap Table area only between 7 am and 12 noon, the Saturday of the Stellafane convention.

The Springfield Telescope Makers, Inc. may choose to grant a limited exception to the above policies to astronomy related organizations for their fundraising. Any request for an exemption must be made, in writing, at least one month prior to the convention. If granted, the President of the Springfield Telescope Makers, Inc. will notify the requesting organization in writing.

Any member of the Springfield Telescope Makers, Inc. has the authority to determine whether a party is in compliance with the established regulations. Any person who is found to be in violation of the stated policies will be required to comply. Failing compliance, the offending party will be asked to leave the convention and may be escorted from the premises by convention security.

The Springfield Telescope Makers, Inc. encourages those with questions regarding this policy to contact the Club via the Stellafane web page (www.stellafane.org). During the convention, any questions regarding this policy, the appropriateness of items being displayed, or any information being disseminated, should be directed to a member of the Springfield Telescope Makers, Inc.

Food Service

The main food service tent is located just to the south of the Bunkhouse. Note: This food service tent is open all night if you need a snack and/or coffee during your observing session.

Food service will be available for Thursday dinner and for Friday breakfast if you are using our new Early Entry Permit option.

Shuttle Bus

The Shuttle Bus makes two stops in Stellafane East, one by the Food Tent and one by the main Camping Area (See Stellafane East Site Map). It makes one stop on Breezy Hill near the Clubhouse.

Family Service Radios

The convention staff uses family service radio channel 7 to facilitate communications during the convention. **Please avoid use of channel 7 when you are at the convention site, except in emergencies.**

2 Meter Repeater: W1STM

There is usually a 2 meter Ham Radio repeater, call sign W1STM, operating at 14,527 MHz on site.

Cell Phone Service

Be advised that cell phone service is "spotty" in hilly southern Vermont. Good coverage is generally available near interstates and town centers, but gets less reliable as you move off into the countryside. At Stellafane, you might have to move about the site to get a connection, but most carriers do have a useable signal at least in some (higher) areas of our site. If you can see Mt. Scutney to the north, you will likely have service.

Campfires Not Allowed

Open campfires are not permitted. If you are camping and/or cooking on the Stellafane site, you must use approved cooking equipment such as a portable grill or camp stove. Do not cut any trees. Also, always be careful about disposal of cigarette butts.

Golf Carts and ATVs

No personal golf carts or ATVs will be allowed at convention. Only golf carts and ATVs being used for official convention purposes will be allowed.

Generators and Recharging

Use of generators is discouraged at Convention. Properly muffled RV generators and quiet portable generators of 1,000 watts or less may be used between the hours of 9 am to 6 pm in the camping areas only. Generators may never be used in the observing fields, after dark, or at other locations at Stellafane. The generator must not create a hazard. Any complaint of unsafe operation or excessive noise will immediately cause the generator to be banned from operation.

There are outlets along the walls of both the McGregor observatory and the Flanders Pavilion that may be used for recharging batteries and portable devices. However, the Springfield Telescope Makers accept no responsibility for unattended property.

Pet Policy

The Springfield Telescope Makers, Inc. welcomes you to bring your pets to the Stellafane convention, provided the following rules are followed:

- **Pets must be confined, leashed or otherwise under the physical control of a person at all times. Leashes may not exceed 6 feet in length. Pets that are tethered at the campsite cannot be left unattended for more than 30 minutes. Pets may not be tied to trees, bushes, tables or shelter facilities, even when the owners are present.**
- **Pets must be well-behaved at all times. Pets must be confined in the owner's camping unit during quiet hours (11 pm - 8 am).**
- **Pet owners are required to pick up after their pets and properly dispose of all pet droppings in trash receptacles.**
- **Any pet that is noisy, dangerous, intimidating or destructive will not be allowed to remain at the Convention.**

Failure to comply with the above rules will result in you and your pet being asked to leave the convention; you may be escorted from the premises by convention security. The Springfield Telescope Makers, Inc. thanks you in advance for helping to make the Stellafane convention more enjoyable for everyone. Enjoy the convention!

Stellafane Endowment Fund

The Endowment Fund is intended to ensure that the birthplace of amateur telescope making is preserved for future generations by providing adequate funding to cover the basic costs of maintaining the Stellafane clubhouse, the Porter and McGregor observatories, and other existing and future buildings and properties owned by the Springfield Telescope Makers, Inc. If you are interested in supporting the endowment fund you may do so by mail or online with our Donation Form at stellafane.org/help/donate-form.html. Thanks!

Lost and Found

The lost and found is located at the t-shirt table near the food tent.

Stellafane Website

We Want Your Photos and Videos!

The Stellafane website (<http://Stellafane.org>) offers extensive how-to information and links on telescope making, and detailed Stellafane history. You'll also find accounts and photos from past conventions there, and of course we will post many photos from this convention in the weeks following the event, as well as the list of competition winners.

Your submissions are very welcome—please send your photos (or links to those you've uploaded to sharing sites) to webmaster@stellafane.org. Videos are welcomed as well, but please don't send them directly; use a sharing service like YouTube or Vimeo and send us a link.

The Telescope Competition

The Heart and Soul of Stellafane

If you have built a telescope or a special gadget, or restored a historical instrument, we strongly encourage you to enter it in the competition!

Note: You can drive up to the Pink Clubhouse area during daylight hours Friday or Saturday to drop off and pick up your telescope, but there is no extended parking as space is extremely limited. Please move your car to a designated parking area at Stellafane East as soon as possible.

Telescopes may be entered in either competition or both competitions if you wish.

First Homemade Telescope Certificate

In order to further encourage and recognize telescope building, we are offering a certificate of recognition for first time telescope makers. You do not have to enter the competition if you do not want to, but you must bring your first homemade telescope to Breezy Hill and display it. Please register ahead of time online and check in at the pink clubhouse. You will be awarded a certificate recognizing your efforts in building and displaying your first homemade telescope at Stellafane, and your name will be shown on the screen at the Saturday night program.

New: Master Class

In order to encourage first-time entrants to enter their scopes without feeling that they must be ready to compete with previous first-place winners and optical professionals who enter their amateur work, we have established a separate competition class for entrants with a track record of high achievement. Rules are available at the registration table.

Optical Competition

Registration for the optical competition will take place on Friday from 5 pm to 8 pm in the Pink Clubhouse. Keep in mind that if you have registered your instrument online, you must still check in at the Clubhouse Friday from 5 pm to 8 pm or your telescope will not be judged! Set up your scope on Breezy Hill before you check in and inform the judges of the location of your scope. If the position of your scope changes it is your responsibility to report its new location to the judges in the Pink Clubhouse. Failure to do so will result in your scope not being judged!

All telescopes in the competition **must be fitted with an eyepiece with a focal length, in millimeters, approximately equal to the focal ratio of the instrument.** Your instrument must be properly collimated before judging begins at 10 pm. Also, **be prepared to point your scope at the star Altair** when the judges arrive. Please note that the judges may inspect your telescope more than once. Therefore, you should remain on the field with your instrument until the preliminary results are announced via loudspeaker. Note that judging can last until 2 or 3 am!

If the weather permits the completion of the judging on Friday night, the optical judging will be closed for the duration of the convention and optical awards will be presented during the Saturday evening program. If the optical judging cannot be completed Friday night, it will be continued on Saturday night, weather permitting. Additional optical entries may be accepted on Saturday, at the discretion of the judges. To inquire about this possibility, please ask a judging representative in the Pink Clubhouse from 5 pm to 8 pm on Friday or from 8 am to 9:30 am on Saturday.

In the event that the competition will have to be continued Saturday, some telescopes that were judged on Friday might need to be judged again. Please inquire with the judges if your scope will need to be available again on Saturday. If the optical judging cannot be completed by the end of Saturday night, a partial field of optical excellence awards may be given, at the discretion of the judges.

Please note that it is the intention of the Stellafane judging committee to have the optical competition completed Friday night, weather permitting. Therefore, to ensure that your instrument is judged you must be registered for the Friday night judging.

Clarification on "small" vs. "large" Newtonians: The small category includes any mirror of 12.5 inches optical diameter or less; the "large" category is for mirrors that are greater than 12.5 inches in diameter.

2016 Optical Judging Chairman: Rick Hunter

Mechanical Competition

Registration for the mechanical competition will be between 8 am and 9:30 am Saturday morning in the Pink Clubhouse. Keep in mind that if you have registered your instrument online, you must still check in at the Clubhouse Saturday morning or your telescope will not be judged. The telescope judging for mechanical excellence will begin at 10 am so please register your telescope as early as possible.

Only telescopes that are operative both mechanically and optically will be accepted in the mechanical competition. The judges will visit the telescopes in several small groups. You must attend your telescope until the end of the competition is announced via the loudspeaker. Be prepared to describe any special construction techniques and components to the judges. Awards for mechanical design, craftsmanship, special gadgets, restoration of historical instruments and junior telescopes, made by persons less than 16 years of age, will be awarded at the Saturday evening talks.

Mechanical design vs. craftsmanship: the mechanical award is for the design of the instrument, how unique it is compared with prior art, and its effectiveness in providing a useful instrument, while the craftsmanship award is for execution (how well the design was translated into a workable and functional instrument).

2016 Mechanical Judging Chairman: Chris Houghton

Last Year's Competition Winners

OPTICAL

Glenn Jackson, Warwick RI, 14" newt-dob **first place large optical**

Paul Courtemanche, Groton, MA, 8" f/9 dob **first place small optical**

Prasad Agrahar, Wynnewood, PA, 8-inch f/6.3 newt-dob (first scope) **second place small optical**

Jeffery Parenteau, Gilsum NH, 4.5" f/14.4 doublet refractor, **first place compound optics**

Matt Considine Randolph, VT, **Jim Daley**, New Ipswich, NH, & **Dave Groski**, Hockessin, DE, 6-inch F/12 full-sized corrector Schupmann, **second place compound optics**

MECHANICAL

Walter Campney, Woodstock Ontario, 18" newt-dob, **first place mechanical design**

J. T. Senghas, Bloomdale, OH, 10" f/4.7 newt-dob that packs flat, **second place mechanical design**

Glenn Jackson, Warwick, RI, 14" newt-dob **third place mechanical design**

Maggie Murphy, Antrim, NH, 6" f/6 newt on goto gem, **honorable mention mechanical design**

CRAFTSMANSHIP

Walter Campney, Woodstock, Ontario, 18" newt-dob, **first place craftsmanship**

Glenn Jackson, Warwick, RI, 14" Newt-Dob **second place craftsmanship**

Jean Paul Pelletier, Quebec, Canada, 10" f/6 newt-dob, **third place craftsmanship**

J. T. Senghas, Bloomdale, OH, 10" f/4.7 newt-dob that packs flat, **honorable mention craftsmanship**

SPECIAL AWARD

Alan Sliiski, Lincoln, MA, advanced Foucault tester, **first place special award**

David Leclerc, South Deerfield, MA, binocular parallelogram mount and tripod, **second place special award**

John Colt, Williston, VT, 3-D Printed Optical Bench, **third place special award**

Steven Bellavia, Mattituck, NY, planet shadow catcher, **honorable mention special award**

JUNIORS

Kaspar Renken, New Fairfield, CT, 4" newt -dob, **first place mechanical (junior)**