

2013 Stellafane Convention

The 78th Convention of Amateur Telescope Makers on Breezy Hill in Springfield, Vermont
43° 16' 41" North Latitude, 72° 31' 10" West Longitude

Thursday, August 8 to Sunday, August 11, 2013

"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.

THE STELLAFANE CLUBHOUSE

The clubhouse was designed by 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. Although it's now a tight fit with today's larger membership roster, the Springfield Telescope Makers still hold meetings at Stellafane. The original site, including the clubhouse and the Porter Turret Telescope, was designated a National Historic Landmark in 1989. Photo is from 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, and is operated during Convention, night and day (for solar observation). Photo is from 1930s.



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 mounted on a massive computer controlled alt-az mounting. 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.



THE SITE

The original Stellafane site on Breezy Hill remains the location for the telescope competition, and of course is where the Stellafane clubhouse and Porter Turret Telescope are located. In 1986, faced with the loss of access to an adjacent 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.

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.

THE DOMED OBSERVATORY

Stellafane East also hosts a beautiful 10" Ritchey-Chrétien telescope mounted on a Springfield Mount (another Porter design), built by Dino Argentini in 1964 and eventually donated to the club. It is housed in a domed observatory built in 2006, just south of the McGregor Observatory. This telescope's stationary eyepiece is accessible to wheelchair users.



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

THURSDAY, AUGUST 8, 2013

8:30 am - 5 pm	Hartness House Workshop on Solar Astronomy	Hartness House	Separate Registration and Fees for this Workshop	
12 pm - 4 pm	Large RV Permit Holders must arrive	Entry Gate		
3 pm - 10 pm	Early Entry Permit Holders can arrive	Entry Gate	Please don't arrive before 3!	
8:30 pm -	Observing with the Hartness Turret Telescope	Hartness House Turret Telescope	Weather Permitting	ALL

FRIDAY, AUGUST 9, 2013

9 am	Registration Gate Opens	entry gate		
10 am - 6 pm	Shuttle Bus Operates	Shuttle Bus Stops: Pine Island, Food Tent, Pink Clubhouse		
10 am - 4 pm	Mirror & Telescope Making Demonstration	Tent north of Flanders	Flanders Pavilion	ATM
10 am	Mirror Making: Introduction & Rough Grinding	Tent north of Flanders Pavilion	Ray Morits	ATM
10:30 am	Mirror Making: Fine Grinding	Tent north of Flanders Pavilion	Rick Hunter	ATM
11 am - 12 noon	The Transit of Venus –A Journey through History	Flanders Pavilion	Carl Malikowski	NTA
11 am - 12 noon	Models of the Solar System	McGregor Observatory Library	Ages 5-12; Limited to first 25 arrivals	KIDS
11 am - 12 noon	Scavenger Hunt for Tweens and Teens	Amphitheater	Liz Sharpe and Jean Zuhl, for Teens ages 12-16	TEENS
11 am	Mirror Making: Making Dental Stone Tools	Tent north of Flanders Pavilion	Junie Esslinger	ATM
11:30 am	Mirror Making: Making Pitch Laps	Tent north of Flanders Pavilion	Phil Rounseville	ATM
1 - 2 pm	Rewriting History (DASCH Project at Harvard)	McGregor Observatory Library	David Sliski	ADV
1 - 2 pm	Mirror Class to Competition: First Time Builder's Experience	Flanders Pavilion	Cecilia Detrich	INT, ATM
1 pm	Solar System Walk	Meet at Green Shed near Clubhouse	Allen Tinker	NTA
1 pm	Mirror Making: Polishing & Figuring	Tent north of Flanders Pavilion	Dave Groski	ATM
2 - 3 pm	Starhopping for Beginners	McGregor Observatory Library	Kristine Larsen	NTA
2 - 3 pm	Solar Observing Hour	Observing Fields	Please set up your Solar Scope and Share	ALL
2 - 3 pm	The Wonderful World of Wide Angle Astroimaging (Talk)	Flanders Pavilion	Al Takeda (Demo Friday 8 pm)	INT
2 - 4 pm	Mirror Making: Testing	Tent north of Flanders Pavilion	Dave Kelly (Bring your own mirror to be tested)	ATM
3 - 4 pm	How the Porter Turret Telescope Came About	Flanders Pavilion	Bert Willard	INT
3 - 4 pm	Astronomy Activities for Children: Phases of the Moon	McGregor Observatory Library	Ages 5-12; Limited to first 25 arrivals	KIDS
3 pm	Telescope Making: Dobsonian Basics	Tent north of Flanders Pavilion	Ken Slater	ATM
4 pm	Youth Astronomy Competition	Flanders Pavillion Program Room	Samantha Tabor	Ages 5-16 TEENS, KIDS
4 - 5 pm	The Aurora: Research from Sounding Rockets and the Ground	Flanders Pavilion	Dave McGaw	INT
4 - 5 pm	Automating an Amateur Observatory	McGregor Observatory Library	Alan Sliski	ADV
5-8 pm	Registration for Optical Competition	Tent near Clubhouse	You must check in at the judging tent	COMP
5 pm - 8 pm	Hartness-Porter ATM Museum Open	Hartness House		ALL
5:30 - 6:30 pm	Meteorites for Everyone	McGregor Observatory Library	Bob Veilleux	NTA
6 pm - 7 pm	Free Time	Relax or Enjoy Dinner		ALL
7 pm - 8 pm	Introduction to Stellafane	McGregor Observatory Library	Kim Cassia, Dennis Cassia, Gary Cislak.	NTA
7 pm - 8:15	Friday Evening Videos	Flanders Pavilion	Astronomy documentaries for the whole family	ALL
8 pm	The Wonderful World of Wide Angle Astroimaging (Demo)	Next to Domed Observatory	Al Takeda (Talk Friday 2 pm)	INT

8:30 pm	Informal Talks	<i>Flanders Pavilion</i>	Short presentations by Convention Attendees	MCE	
10 pm	Optical Competition Begins	<i>Fields around Clubhouse</i>	If clouded out, will be held on Saturday	COMP	
10 pm	Registration Gate Closes	<i>Entry Gate</i>			
SATURDAY, AUGUST 10, 2013					
7 am	Registration Gate Opens	<i>Entry Gate</i>			
7 am - 12 pm	Swap Tables	<i>Swap Table Area, North of Main Camping Area</i>		MCE	
8 am - 9:30 am	Registration for Telescope Mechanical Competition	<i>Tent near Clubhouse</i>	You must check in at the judging tent	COMP	
8 am - 9:30 am	Registration for Optical Competition (if clouded out on Friday)	<i>Tent near Clubhouse</i>		COMP	
9 am - 5 pm	Shuttle Bus Operates	<i>Shuttle Bus</i>	Bus Stops: Pine Island, Food Tent, Pink Clubhouse		
10 am - 4 pm	Mirror & Telescope Making Demonstration	<i>Tent north of Flanders Pavilion</i>		ATM	
10 am	Mirror Making: Introduction & Rough Grinding	<i>Tent north of Flanders Pavilion</i>	Ray Morits	ATM	
10:30 am	Mirror Making: Fine Grinding	<i>Tent north of Flanders Pavilion</i>	Rick Hunter	ATM	
10 am - 11 am	Introduction to Stellafane	<i>McGregor Observatory Library</i>	Kim Cassia, Dennis Cassia, Gary Cislak.	NTA	
10 am - 1 pm	Telescope Mechanical Competition	<i>Fields around Clubhouse</i>		COMP	
10 am	Telescope Field Walk	<i>Front of Clubhouse</i>	Led by Carl Malikowski and John Vogt	NTA	
11 am - 12 noon	Astronomy Activities for Children: How Telescopes Work	<i>McGregor Observatory Library</i>	Ages 5-12; Limited to first 25 arrivals	KIDS	
11 am	Mirror Making: Making Dental Stone Tools	<i>Tent north of Flanders Pavilion</i>	Junie Esslinger	ATM	
11 am - 12 noon	A Dipper Full of Stars	<i>Flanders Pavilion</i>	Richard Sanderson	NTA	
11 am - 12 noon	Comets - Inside and Out	<i>Flanders Pavilion Program Room</i>	Liz Sharpe and Jean Zuhl Ages 12-16	TEENS	
11:30 am	Mirror Making: Making Pitch Laps	<i>Tent north of Flanders Pavilion</i>	Phil Rounseville	ATM	
1 pm - 2 pm	Lunar Drawing	<i>McGregor Observatory Library</i>	Paul Cicchetti	INT	
1 pm - 2 pm	Make Your Own Observatory	<i>Flanders Pavilion</i>	Phil Harrington	ADV	
1 pm	Solar System Walk	<i>Meet at Green Shed near Clubhouse</i>	Allen Tinker	NTA	
1 pm	Mirror Making: Polishing & Figuring	<i>Tent north of Flanders Pavilion</i>	Dave Groski	ATM	
2 pm - 3 pm	From Asteroids to Virgin Galactic: Successful Student 'Space Programs'	<i>McGregor Observatory Library</i>	Ron Dantowitz	INT	
2 pm - 3 pm	Pan-STARRS: Gigapixel Astronomy w/ Atmospheric Distortion Correction	<i>Flanders Pavilion</i>	Bernie Kosicki	ADV	
2 pm - 3 pm	Solar Observing Hour	<i>Observing Fields</i>	Please set up your Solar Scope and Share	ALL	
2 pm - 4 pm	Mirror Making: Testing	<i>Tent north of Flanders Pavilion</i>	Dick Parker (Bring your own mirror to be tested)	ATM	
3 pm - 4 pm	Telescope Mirrors in the Age of Expensive Glass	<i>Flanders Pavilion</i>	Larry Shaper	ADV, ATM	
3 pm - 4 pm	Double Stars are Twice the Fun	<i>McGregor Observatory Library</i>	Glenn Chaple	INT	
3 pm	Telescope Making: Dobsonian Basics	<i>Tent north of Flanders Pavilion</i>	Ken Slater	ATM	
4 pm - pm	Lunar Geology with a CCD	<i>Flanders Pavilion</i>	Richard Jakiel	ADV	
4 pm - 5 pm	Astronomy Activities for Children: Phun with Photons	<i>McGregor Observatory Library</i>	Ages 5-12; Limited to first 25 arrivals	KIDS	
5 pm - 6 pm	An Introduction to Telescopes for All Ages	<i>McGregor Observatory Library</i>	Glenn Chaple & Alan French	NTA	
6 pm - 7 pm	Free Time	<i>Relax or Enjoy Dinner</i>	An hour with nothing scheduled	ALL	
7 pm	Saturday Evening Program & Keynote Talk	<i>amphitheater (Flanders Pavilion if rain)</i>	Includes Keynote, Shadowgram, Raffle & Awards	MCE	
10 pm	Discover and Enjoy the Night Sky	<i>(Held regardless of weather)</i>	<i>McGregor Observatory Library</i>	Steve Dodson & John Briggs	NTA
10 pm	Optical Competition Begins (only if clouded out on Friday)	<i>Fields around Clubhouse</i>		COMP	
SUNDAY, AUGUST 11, 2013					
8 am - 12 pm	Convention Cleanup	<i>Please clean up around your campsite-Please put trash in the dumpsters</i>		ALL	
9 am - 12 pm	Hartness-Porter ATM Museum Open	<i>Hartness House</i>		ALL	

Event and Presentation Details

ACTIVITIES FOR TEENS AND CHILDREN

For ages 5-12

There will be four 1-hour astronomy workshops for children held in the McGregor Observatory Library during the 2013 Stellafane Convention, and each session has a different activity. These astronomy workshops have been held at the Stellafane convention since 1995. Led by Dr. Kristine Larsen, of Central Connecticut State University and member of the Springfield Telescope Makers, each of the four 1-hour workshops includes several activities geared for children ages 5 - 12. Younger children are welcome but will need help from a parent. Due to space limitations, each workshop is limited to 25 children on a first-come basis. Each workshop has a different astronomical theme:

- **MODELS OF THE SOLAR SYSTEM, Friday 11 am to Noon**—Construct and take home two scale models of the planets, one showing how big and small they are compared to earth, and the other how close or far they are to the sun.

- **PHASES OF THE MOON, Friday 3 pm to 4 pm**—Learn about why the moon has phases, what the phases are called and what they look like, and how you can see the different phases at different times of day and night. Take-homes include a moon phase flipbook and moon clock.

- **HOW TELESCOPES WORK, Saturday 11 am to Noon**—Discover how lenses and mirrors work, and how astronomers put them together to make telescopes. Take-homes do NOT include a telescope!

- **PHUN WITH PHOTONS, Saturday 4 pm to 5 pm**—Discover how astronomers use light to understand stars. Take-homes include diffraction glasses and UV beads.

For ages 12-16

There will be two 1-hour astronomy related activities for teens this year hosted by Liz Sharpe and Jean Zuhl:

- **SCAVENGER HUNT for Tweens and Teens, Friday 11 am to Noon in the Amphitheatre**—Attendees are invited to learn about the history and grounds of Stellafane by participating in a scavenger hunt. Participants will be asked to complete various tasks that will take them all over Stellafane and introduce them to some of the more important aspects of the convention: the Pink Clubhouse, the Porter Turret, the Bunkhouse, the McGregor, and the Flanders .

- **COMETS - INSIDE AND OUT, Saturday 11 am to Noon in the Flanders Pavilion Program Room**—Attendees will learn about the components of a comet, and make an edible model of one. (Space is limited for this program)

Youth Astronomy Competition:

Win the Stargazer Steve Telescope! (ages 5 - 16)

4 pm Friday in the Flanders Pavilion Program Room, presented by Samantha Tabor. Children ages 5-16 will compete by answering astronomy questions to win the 2013 Stargazer Steve telescope, with specific rules to be explained at the event. Stargazer Steve has been donating a telescope to a youth for many conventions, and the tradition continues again this year. The formal presentation will occur at the Saturday evening program, but often Steve assists with assembly and some instruction prior to that time. Please note that children who have previously won a Stargazer Steve telescope are not eligible to win, but may still compete for the fun of playing only.

AMATEUR TELESCOPE MAKING

Mirror Making Demonstration

10 am - 4 pm Friday and Saturday (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.

Bring your own mirror for testing between 2 and 4 pm either day.

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.

Mirror Class to Competition: a First Time Builder's Experience

1 pm Friday in the Flanders Pavilion, presented by Cecilia Detrich. The experiences

of how a math-phobic complete amateur built her first telescope and not only entered it in the Stellafane competition, but won!

Dobsonian Basics

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

Telescope Mirrors in the Age of Expensive Glass

3 pm Saturday in the Flanders Pavilion, presented by Larry Shaper. Larry Shaper will talk about a figure-of-merit he developed to compare the performance of Borosilicate glass and ordinary glass, as well as other unusual materials, in both making the mirror and using the mirror to observe.

FOR THOSE NEW TO ASTRONOMY

The Transit of Venus: A Journey through History

11 am - 12 noon Friday in the Flanders Pavilion, presented by Carl Malinkowski. Carl will discuss this celestial event through time and its significance in helping shape astronomical knowledge and astronomy as we know today. We'll look at the event, those who took part on recording them, and why they, along with other similar events are so important to the astronomical community. This talk is for both beginners and experienced alike.

Starhopping for Beginners

2 pm Friday in the McGregor Observatory Library, presented by Kris Larsen. What do astronomers and kangaroos have in common? They hop! Learn how to use binoculars and backyard telescopes to locate double stars, clusters, galaxies, and more through the process known as starhopping.

Introduction to Stellafane

7 pm Friday and 10 am Saturday at the McGregor Observatory Library, presented by Kim Cassia, Dennis Cassia, or Gary Cislak. 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 you just want to learn more about who the Springfield Telescope Makers are and what goes on during the convention—this presentation is for you. We'll provide a short history of Stellafane and a description of our site including the buildings and landmarks, and information about the scheduled talks and activities. We'll tell you where to find services available at Stellafane and off site, and we'll answer any questions you may have about the convention.

Solar System Walk

1 pm Friday and Saturday, meet at Green Shed on south side of clubhouse. Presented by Allen Tinker. 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 Allen Tinker will provide additional information about the Solar System Walk and each particular planet. The walk takes approximately three quarters of an hour, 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.

Meteorites for Everyone

5:30 pm Friday, in the McGregor Observatory Library, presented by Bob Veilleux. Bob will be talking all about meteorites including the recent Chelyabinsk meteorite event of Feb. 15, 2013. He will bring along a number of meteorites from his collection of over 350 different meteorites from all over the Earth, Moon and Mars.

Telescope Field Walk

10 am Saturday, meet in front of the Pink Clubhouse. During the "Telescope Field

Walk" Carl Malinkowski and John Vogt, 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

11 am Saturday 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

5 pm Saturday in the McGregor Observatory Library, presented by Glenn Chaple and 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 and Glenn Chapel will cover telescope basics (types, mounts, and eyepieces), telescopes suitable for children, and introduce you to observing and finding sights in the night sky.

Discover and Enjoy the Night Sky

10 pm Saturday in the McGregor Observatory Library, presented by John Briggs and Steve Dodson (Saturday). Held regardless of weather and appropriate for all ages. Using free Stellarium software, Steve and John will introduce beginners to observing the sky, including identifying the constellations, the Milky Way, and planets. Weather permitting we shall work outdoors after a brief, fun introduction in the Library.

INTERMEDIATE LEVEL ASTRONOMY

Mirror Class to Competition: a First Time Builder's Experience

1 pm Friday in the Flanders Pavilion, presented by Cecilia Detrich. The experiences of how a math-phobic complete amateur built her first telescope and not only entered it in the Stellafane competition, but won!

The Wonderful World of Wide Angle Astroimaging

2 pm Friday in the Flanders Pavilion, Presented by Al Takeda Talk; **8 pm Friday** Demonstration near the Domed Observatory. Using a telescope gives us a marvelous ability to photograph high resolution details of an astronomical object. But, if we want to image a planetary conjunction, a meteor shower, or the Milky Way stretching across the backbone of night, we will need lower focal length, wide angle optics. In this presentation, Al Takeda will discuss how to image a wider view of the universe. Topics will include matching the lens to your subject, tracking the stars with your mount, focusing a wide angle camera lens, shutter control, and problems that happen when you image a large swath of the sky. Al will demonstrate wide field techniques in real time on Friday evening only. The location will be next to the Domed Observatory.

How the Porter Turret Telescope Came About

3 pm Friday in the Flanders Pavilion, presented by Bert Willard, Stellafane Historian. This talk traces the origin of the Porter Turret Telescope back to Port Clyde, Maine where Porter first lived after retiring from his arctic explorations. There he built a 16-inch polar telescope - drawings and performance will be discussed. The mirrors eventually ended up in his turret telescope. Construction photos, and later mirror replacement photos, will be shown. Its relationship to other turret telescopes will be mentioned, and current activities with the telescope demonstrated.

The Aurora: A Plasma Experiment— Research from Sounding Rockets and the Ground

4 pm Friday in the Flanders Pavilion, presented by Dave McGaw. A survey of a current auroral research program, including ground-based and rocket observations of the phenomenon.

Lunar Drawing

1 pm Saturday in the McGregor Observatory Library, presented by Paul Cicchetti. During this session, the audience will be introduced to a technique that has been used by the presenter for over 30 years. He will go through a step-by-step process that can be used by an individual to produce fine recordings of one's observation of the moon or lunar features. Also, during this time, the audience can try their hand at performing this

technique. It is hoped by the presenter that by bestowing this method to the audience, they can achieve a greater appreciation for what the ancient astronomers attained before the advent of film or CCD cameras; maybe some will even take up lunar drawing as part of their normal observations.

From Asteroids to Virgin Galactic: Successful Student "Space Programs"

2 pm Saturday in the McGregor Observatory Library, presented by Ron Dantowitz, Director of the Clay Center Observatory at Dexter Southfield School, in Brookline, MA. Come and be inspired by success stories of student astronomers and citizen scientists, and learn how you too can start your own "Space Program"! Topics will include current opportunities at NASA and other organizations for you to become involved in cutting edge astronomy and space science, even if you do not own a telescope. This presentation is for all ages, and will be enjoyed by anyone who loves science and adventure!

Double Stars are Twice the Fun

3 pm Saturday in the McGregor Observatory Library, Presented by Glenn Chaple. "Double Stars are Twice the Fun" will begin with an overview of the nature of double stars and a history of their discovery. The bulk of the presentation will center on visual observing of double stars with backyard telescopes. A description of some of the best showpiece pairs and a listing of resources for double star observers will round out the talk.

ADVANCED LEVEL ASTRONOMY

Rewriting History (DASCH Project at Harvard)

1 pm Friday in the McGregor Observatory Library, presented by David Sliski. The DASCH project or the Digital Access to a Sky Century at Harvard aims to rewrite analogue glass plates on to hard drives by using a custom built scanner. The goal is to open up a new way to explore the cosmos using a 100 year baseline to do time domain astronomy. As the plates are digitized a century of handwriting on the plates is being photographed and then erased. Questions have come up regarding what should be saved and how. At the conclusion of the talk the presenter hopes to have a discussion about the merits of different choices that can be made to preserve the history and heritage of the Harvard Plate Stack Collection.

Automating An Amateur Observatory

4 pm Friday in the McGregor Observatory Library, Presented by Alan Sliski. Automating an amateur observatory offers several advantages over more manual or local control. Once the observer can be separated from the telescope, in a warm room next door, or on the other side of the world, the environment for the observer and telescope can be independently controlled. The present state of the art in software and hardware for accomplishing this will be described, along with advice for planning the observing system. A good block diagram, prepared in advance, is a great beginning for the project, and an example will be shown. Peripheral equipment such as cloud sensors, safety switches, and remote controlled outlets will be described. My own preference is to convert all communications to Ethernet for distance and electrical isolation benefits. Configuring a computer and software can be a challenge, but the high level of automation available to amateurs today is the reward.

Make Your Own Observatory

1 pm Saturday in the Flanders Pavilion, presented by Phil Harrington. Have you ever wanted your own observatory? We all have. Phil realized his dream in 2004, and discusses the planning that went into building Star Watcher Observatory in this illustrated presentation. This talk also discusses strategies for planning a backyard observatory and reviews some other amateur creations.

Pan-STARRS: Gigapixel Astronomy with Atmospheric Distortion Correction

2 pm Saturday in the Flanders Pavilion, Presented by Bernie Kosicki. The Panoramic Survey Telescope and Rapid Response System (Pan-STARRS) is an innovative wide-field imaging facility developed at the University of Hawaii's Institute for Astronomy.

The combination of four relatively small mirrors (1.8 m) with very large digital cameras (1.4 Gpixels each) results in an economical system that can observe the entire available sky several times each month. The redundancy offered by using multiple mirrors to view the same area of the sky also allows for economical use of not-quite-perfect imager chips.

This seminar describes the technology behind the gigapixel Pan-STARRS charge-coupled device (CCD) focal plane developed and constructed at Lincoln Laboratory. This is the largest focal plane ever constructed for astronomy. A second unique feature of this focal plane is the use of the orthogonal-transfer CCD (OTCCD) as the basic imaging cell for this very large focal plane. Pan-STARRS is also the first large-scale use of OTCCD

technology, which allows compensation of the translational-movement component of atmospheric distortion. The focal plane design enables atmospheric compensation to be individually implemented for each 10×10 arc-minute portion of the total 3-degree-wide image and accounts for the exceptional ability of the system to do very accurate astrometry.

The primary purpose of Pan-STARRS is to detect potentially hazardous objects in the solar system, but its ability to map very large areas of sky to great sensitivity and its ability to find faint moving or variable objects make the system uniquely valuable for a large number of other scientific purposes. The prototype single-mirror telescope P51 is now operational on Mount Haleakala.

Telescope Mirrors in the Age of Expensive Glass

3 pm Saturday in the Flanders Pavilion, presented by Larry Shaper. Larry Shaper will talk about a figure-of-merit he developed to compare the performance of Borosilicate glass and ordinary glass, as well as other unusual materials, in both making the mirror and using the mirror to observe.

Lunar Geology with a CCD

4 pm Saturday in the Flanders Pavilion, presented by Richard Jakiel. Today's amateur is now capable of producing spectacular Lunar images that were only possible using an orbiter a generation ago. With a DSLR, CCD and/or planetary imaging camera it is now possible to image the lunar surface with sub-arcsecond resolution using only modest backyard equipment. In his talk, Richard Jakiel will discuss lunar geology and evolution of the surface features. He will discuss the formation of the mare, craters and crater evolution, lunar tectonics, volcanism, lunar surface chemistry and other more elusive and unusual features.

OTHER PROGRAMS SUITABLE FOR EVERYONE

Solar Observing

2-3 pm Friday and 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.

Observing with the Hartness Turret Telescope

8:30 pm on Thursday at the Hartness House in Springfield. Weather permitting, we plan to have an observing session with the Hartness Turret Telescope. We also expect several members of the Antique Telescope Society to have instruments set up on the lawn near the Hartness Turret Telescope, so viewing opportunities through other historic instruments is likely to be had.

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 cut-away 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. A limited number of DVDs of some of the NASA videos shown will be given away to attendees.

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.

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 6**)

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 at the T-shirt table 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: John Bortle
- Presentation of Telescope Competition Awards
- Stellafane Keynote Talk: Comet Tales: Our changing view of these cosmic vagabonds by Guy Consolmagno

Brother Guy Consolmagno SJ is a planetary scientist who serves as Curator of Meteorites at the Vatican Observatory. A native of Detroit, he studied at MIT (SB 1974, SM 1975) and Arizona (PhD 1978), worked at Harvard and MIT, served in the Peace Corps, and taught university physics before entering the Jesuits in 1989. At the Vatican Observatory since 1993, he studies the physics of meteorites and asteroids, and has written several popular books on astronomy and his life as a Jesuit scientist. In 2007 he served as chair of the American Astronomical Society's Division for Planetary Sciences, and he is a past officer of the International Astronomical Union, who named asteroid 4597 Consolmagno in his honor. He also co-authored with Dan M. Davis the amateur astronomy guidebook *Turn Left at Orion*.

Brother Guy will be available to sign copies of his book at a time and place to be announced.

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 home made.** 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 desig-

nated 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 flashlights is available at the Pink Clubhouse and at the Bunkhouse. We thank you for your cooperation

Food Service

The main food service tent is located just to the south of the T-shirt table. 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. Ascutney 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.

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:

- 1. Only surplus astronomical, telescope and telescope making related items may be sold.**
- 2. Each person will be allowed 16 square feet of table or ground space.**
- 3. Items which have the appearance of being specifically purchased or manufactured for sale at the Swap Tables may not be sold.**
- 4. All sales must take place within the designated Swap Table area only between 7 am and 5 pm, 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.

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 at the Bunkhouse.

Stellafane Web Site Wants Your Photos!

The Stellafane web site (<http://Stellafane.org>) will have many photos from this convention, as well as many of the presentations and the winners of the telescope competition available in the weeks following the event. We are always happy to accept photos of convention for publication on the web site. Additional information on telescope making, Stellafane history and past conventions is also available there.

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.

Optical Competition

Registration for the optical competition will take place on Friday from 5 pm to 8 pm in a tent near the Pink Clubhouse. Keep in mind that if you have registered your instrument online, you must still check in at the tent 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.

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 8:30 am to 10 am or from 5 pm to 8 pm 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 inches optical diameter or less; the "large" category is for mirrors that are greater than 12 inches in diameter.

2013 Optical Judging Chairman: Rick Hunter

Mechanical Competition

Registration for the mechanical competition will be between 8 am and 9:30 am Saturday morning in a tent near the Pink Clubhouse. Keep in mind that if you have registered your instrument online, you must still check in at the tent 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).

2013 Mechanical Judging Chairman: Chris Houghton

Last Year's competition winners

Gerry Logan, Lakewood, CA, 7-inch f/10 Schupmann on Fork—**1st Place Optical (Compound Optics); 1st Place Mechanical Design; 1st Place Craftmanship**

Vince Sheetz, Harleysville, PA, 12½-inch f/7 Newt Dob—**1st Place Optical (12½" and larger); 3rd Place Mechanical Design; 3rd Place Craftmanship**

David Groski, Hockessin, DE, 4-inch f/11.5 Scope on a Stick—**1st Place Optical (tie, smaller than 12½")**, **Innovative Component (Split-PVC/Teflon Bearing)**

Fran Edwards, Lancaster, MA, 10-inch f/5.5 Newt Dob—**1st Place Optical (tie, smaller than 12½")**

Doug Arion, Whitefield, NH, 6-inch f/4.6 Newt on Bowling Ball with mini-Poncet—**2nd Place Optical (smaller than 12½")**; **2nd Place Mechanical Design; 2nd Place Craftmanship**

Bill Cheng, Mt Jackson, VA, 8-inch f/6 Newt Dob—**3rd Place Optical (smaller than 12½")**

Bert Willard, Carlisle, MA, Glass Globe Caustic Sundial—**Special Award**

Dominic Fucile, Waquoit, MA, Solar Tracking 4.1-inch f/8 Newt Fork—**1st Place Junior**

Lillian Fucile, Waquoit, MA, 6-inch f/8 Edmund Newt GEM Restoration—**2nd Place Junior**

Nick Franklin, Gorham, ME, 4½-inch f/8 Newt Dob—**3rd Place Junior**

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