The Springfield Telescope Makers

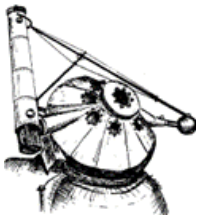
Present

The Hartness House Workshop

Eclectic Astronomy II

August 17, 2023

Stellafane, the first Convention 1926



Hartness House Workshop
Chairman: Dr. Thomas Spirock
Co-Chair and Registrar: Dan Lorraine
Hartness House Workshop, August 17, 2023

8:30 – 9:00 **Registration, Breakfast and Coffee**

9:00 – 9:10 **Words of Welcome**
Bob Morse, President, Springfield Telescope Makers
Dr. Thomas Spirock, Chairman, Hartness House Workshop

9:10 – 9:50 **The Discovery of the Super Schupmann Design**
Cliff Ashcraft, Amateur Astronomers Inc.

9:50 – 10:30 **Museum of Astronomical Telescopes in Tawa, Japan**
Shosako Murayama, Museum of Astronomical Telescopes

10:30 – 11:00 **Coffee Break**

11:00– 11:40 **Finding Stellafane: The Early 20th Century Surveying Methods as Used By the U.S. Geological Survey and Russell W. Porter**
George Sprintston, Norwich University, Springfield Telescope Makers

11:40 – 12:20 **AAVSONet an Automated Telescope Network**
Peter Bealo, Amateur Telescope Makers of Boston

12:20 – 1:40 **Lunch**
The Hartness/Porter Museum of Amateur Telescope Making is open
Matt Considine; STM Historian. Rick Hunter and Dave Groski; tour docents.

1:40 – 2:20 **Russell W. Porter: Life Before the Telescopes**
Rosanne "Bunni" Putnam, Springfield Art & Historical Society

2:20 – 3:00 **Plowshares into Swords: How Astronomers and Telescope Makers Helped Win the Cold War**
Joseph B. Houston Jr. and John W. Briggs, Springfield Telescope Makers

3:00 – 3:40 **Russell Porter's Early Years and the Founding of Stellafane**
Mario Motta, MD, FACC, Springfield Telescope Makers

3:40 – 4:10 **Coffee Break**

4:10 – 4:50 **150 Years and Counting! The Sesquicentennial of the U.S. Naval Observatory's 26-inch "Great Equatorial" telescope**
Geoff Chester, U.S. Naval Observatory

4:50 – 5:30 **Creating Griffith Observatory**
Anthony Cook, Griffith Observatory (retired)

5:30 – 6:00 **Break**

6:00 – 7:00 **Cocktail Hour**

7:00 – 8:00 **Banquet**

8:00 – 9:00 **Porter in Pasadena: R.W. Porter's Contributions to the Development and Legacy of Palomar Observatory**
Dr. Andrew Boden, Caltech

Hartness and Porter 1920

Russell W. Porter 1937

Abstracts and Biographies

Clif Ashcraft – The Discovery of the Super Schupmann Design

Abstract: The talk briefly covers the history and principle of the Schupmann telescope and then becomes a story of my encounter, fascination and exploration of the design of Schupmann telescopes in 1964 using geometric ray tracing with the IBM progam POSD (Program for Optical System Design) running on the IBM 1130 mini computer (mini because it would fit into a single room). I discuss the huge differences between computers of the 60's and what we are familiar with today, including the lack of a graphical user interface and having everything to do with IBM cards, cards, cards. Having learned to use POSD to design the objective of the 10" refractor of Sperry Observatory, I explored optimization of the Schupmann design with the restriction that the surfaces remain spherical throughout, ie, no figuring. When I allowed the automatic design function in POSD to alter the relative size of the corrector to the objective, the program converged to a design completely free from coma, primary spherical aberration, zonal spherical aberration and chromatic aberration where the mangin corrector was 53.76% the size of the objective. It turns out that this percentage is a function of the refractive index of the glass used. I gave a brief presentation of my results at the Stellafane convention of 1966 and the events that followed leading to the construction of the 13" Super Schupmann at McGregor Observatory.

Bio: Born Nov 1, 1938 in Lexington, KY. Family moved to Cincinnati, Ohio area in early 1940's. Became an astronomer on August 26, 1942 when Mom let me stay up past 11 pm to watch a total lunar eclipse. I grew up in rural Ohio. Was science nerd at early age. Built simple refractors from surplus lenses by the time I was 12 (yes, I bought the amazing "Build your own 500x telescope advertised in the comic books for $3.85, from which I learned a lot about optics and arrived at an early understanding of false advertising) and watched my first Mars opposition in 1952. Was disappointed by the view but talked my Dad out of an Edmunds 6" reflector mirror grinding kit for Christmas in 1953. Completed 6" f/8 Newtonian in 1955. It served me well until I built a 10" Newtonian in the 1990's. In the meantime, I went to High School in Loveland Ohio, got my BS in Chemistry from the University of Cincinnati, got married (Catherine Mueller, aka Kitti), and started a family. We moved to Berkeley, California where I did research for my doctorate in Organic Chemistry, had second son (free on student medical plan), got the PhD in 1963 and accepted a job in chemical research with Union Carbide in Bound Brook, NJ and managed to stay in the laboratory for 40 years, resisting mightily all attempts to kick me upstairs into management I worked on polymer synthesis, advanced rocket propellants, coupling agents for mineral filled thermoplastics, voltage stabilized polyethylene for buried power cables, and cycloaliphatic epoxides. During this time Kitti and I had two more sons. I finally retired as a Senior Corporate Fellow in 2003 and became a full time amateur astronomer, ATM and observatory builder. My 7.25" f/14 Schupmann Medial is my favorite telescope, but I also have a C11, C14, and a 12.5" Newtonian. Since then I have concentrated on Lunar and Planetary Imaging and the measurement of double stars for which I have several papers in the Journal of Double Star Observations. Recently I have learned to use the technique of live stacking of deep sky objects using the tool in SmartCap. This allows one to obtain moderately long exposures without guiding. I will be giving a talk for AAI on my efforts imaging galaxies with this technique on Friday June 25 on the topic "Exploring the Local Supercluster".

Shosako Murayama – Museum of Astronomical Telescopes in Tawa, Japan

Abstract: When I was in the first year of junior high school (age 13), I visited the Kwasan Observatoryof Kyoto University and saw celestial objects through Cooke 12 inch refractor and became fascinated with astronomy and telescopes. It became my life goal to acquire an astronomical telescope as large as the Cook 12 inch. Soon after, I purchased a 6 inch reflector telescope from Nishimura Mfg. which I still use today. In 1989, I built a private observatory at the foot of Mt. Yatsugatake in Nagano Prefecture, Japan, where I installed a 16-inch MEAD, a Takahashi Epsilon 300, and other instruments. In 2010, I founded MAT and became its Chief Director. I dreamed of having a telescope as large as the Cooke Telescope, and the Cooke Telescope itself came to MAT in 2019.

Bio: After graduating from the Faculty of Economics in 1972, I joined Bank of Japan, where I served as an economist for nearly 30 years. In 1980, I obtained MA in Economics from UCLA. From 1981 to 1983, I worked at Bank of Japan's New York office. I retired from Bank of Japan in 2001 and have since served as CEO of Teikoku Seiyaku (Pharmaceutical) CO., LTD., iPS Academia Japan Inc., and iPS Portal, Inc. Now I retired from iPS Portal and have no fulltime job.

George Springston – Finding Stellafane: The Early 20th Century Surveying Methods as Used By the U.S. Geological Survey and Russell W. Porter

Abstract: How did there come to be a U.S. Geological Survey (USGS) benchmark in front of the STM Clubhouse on Breezy Hill? What methods were used to establish the position of this marker? I'll begin by discussing what we know of the history of USGS topographic mapping in Vermont. I'll then describe the field surveying methods used to produce the topographic maps of the 1920s. These included astronomical observations, high-accuracy geodetic triangulation, transit and tape surveys, and differential leveling to establish a network of accurate survey stations. The actual topographic mapping was accomplished by laborious plane table surveys. I'll briefly compare the techniques used by the USGS for detailed topographic mapping in Vermont with those used by Porter in his role as an expedition cartographer in the Arctic and Alaska. Finally, I'll discuss how topographic mapping was about to be dramatically changed by the development of photogrammetry using aerial photos, a revolution that was well underway in the 1930s even as the USGS topographers were mapping the last portions of Vermont.

Bio: I was born in Holliston Massachusetts in 1959. I've been interested in astronomy since about 1972 and built my first telescope (a 6-inch f/8 reflector with Coulter optics) in 1977. I attended Clemson University (B.Sc. in Geology) and the University of Massachusetts at Amherst (M.Sc. in Geology). After working as a surveyor, an aerial photo interpreter, and even a wetland biologist, I was finally able to get back to my geological roots. Since 1996 I've worked with the Vermont Geological Survey, first as a contractor and since 2002 as an employee of Norwich University (with funding from the VGS). My work at Norwich involves mapping of surficial geologic deposits throughout Vermont and conducting studies of landslides and erosion hazards. Although I always kept up an interest in astronomy and have messed about with several telescopes, in 2015 I attended Stellafane for the first time and was inspired to take up amateur astronomy more seriously. With much guidance and encouragement from the instructors at the

STM's Telescope Making Class, I completed my first mirror in 2019 and was elected a full member in late 2020. I've been interested in maps and mapmaking since I was very young, and I thoroughly enjoyed learning to use surveying instruments as a geologist and land surveyor. As I learned more about Russell W. Porters mapmaking and surveying experiences, I felt compelled to try to put his work into context. This talk is the result.

Peter Bealo – AAVSONet an Automated Telescope Network

Abstract: AAVSONet is a remote automated network of imaging telescopes with automated image processing pipeline. Multiband stellar photometry may be made in both hemispheres. The network provides both wide field and deep narrow field capabilities. Its history, uses and possible futures will be discussed.

Bio: Peter is a long-time Stellafane attendee and amateur astronomer. He is a past President of ATMs of Boston, present ATS Secretary and is a member of AAVSO Board of Directors and I&E Section Lead. In the past 4 years Peter has contributed over 20,000 observations to the AAVSO database. He runs the Timberlane Observatory, the only observatory owned by a NH public school district. He has a passion for outreach. Peter is retired from the Semiconductor and Semiconductor Capital Equipment industries.

Rosanne "Bunni" Putnam – Russell W. Porter: Life Before the Telescopes

Abstract: Who was Russell Porter, the man? He was 38 years old when he returned to Springfield and 48 years old when he left for California. So, what did this man, with mechanical ability, interest in art, and extraordinary curiosity, do in the meantime that led him to forming "Stellafane" and the exquisite Palomar drawings? It was not an ordinary life.

Bio: Springfield native, Rosanne "Bunni" Putnam is the president of the Springfield Art and Historical Society. She has written over 500 weekly history columns for the Springfield Reporter and is the author of the book Images of America, Springfield published in 2011 by Arcadia Publishing.

Joseph B. Houston Jr. and John W. Briggs – Plowshares into Swords: How Astronomers and Telescope Makers Helped Win the Cold War

Abstract: Joseph B. Houston, Jr., is a senior optical engineer who is long familiar with Stellafane and with many of its leaders and their careers in optics through the Cold War. Inspired by this year's centennial of the Springfield Telescope Makers and specifically for this workshop, Houston has prepared a detailed monograph highlighting the contributions of telescope makers to the Cold War and to the ongoing progress of science and technology, drawing much on his own unique experience. John W. Briggs will present an outline of the monograph, the full draft of which will be available and engaging for the entire Stellafane community.

Bio: Among diverse achievements in his career, Houston invented and patented the laser unequal-path interferometer (LUPI) and demonstrated it at Stellafane in 1970. Houston is a

past president of the Society of Photo-Optical Instrumentation Engineers (SPIE) and of the New England Section of the Optical Society of America. He was deeply involved in many advanced optical projects for the United States through the Cold War. Briggs is a past-president of the Antique Telescope Society, a member of the Springfield Telescope Makers, and is currently Secretary of the Alliance of Historic Observatories. He was an organizer of the Hartness House Workshop in its early years.

Mario Motta, MD, FACC – Russell Porter's Early Years and the Founding of Stellafane

Abstract: Russell Porter had an amazing, storied career as an engineer, architect, arctic explorer, telescope maker, that culminated in his work on the 200-inch hale telescope. His later important contributions are well documented. During this presentation I will describe the early years that molded him, led him to become an arctic explorer (13 expeditions), how he founded an "artist colony" in Port Clyde Maine where he self-taught himself telescope making. He was eventually lured back to Springfield by James Hartness to work at Jones and Lamson. I will describe how this led Porter to form a group that he taught how to grind mirrors and build telescopes. That pivotal group of early pioneers led directly to the founding of the Springfield Telescope Makers, and Stellafane.

Bio: Dr. Motta had been in practice at North Shore Medical Center in Salem, Massachusetts, since 1983, recently retiring in 2022. He is a graduate of Boston College, with a BS in physics and biology, and of Tufts Medical School. He is boarded in and is a fellow of the American College of Cardiology and of the American Society of Nuclear Cardiology. He is an associate professor of medicine at Tufts University School of Medicine. Dr. Motta has long been active in organized medicine, both in the American Medical Association (AMA) and in the Massachusetts Medical Society (MMS), holding a number of posts through the years. He is a past President of the MMS, and was elected to the AMA council of Science and public Health where he has served 8 years, and elected to the Board of Trustees of the AMA in 2018, recently completing his term. Dr. Motta also has a lifelong interest in astronomy, and has hand built a number of telescopes and observatories through the years to do astronomy research, including his entirely homemade 32 inch F6 relay telescope located in Gloucester, MA. He has been awarded several national awards in astronomy, including the Las Cumbras award from the Astronomical Society of the Pacific in 2003, and also the Walter Scott Houston award from the northeast section of the Astronomical League, and in 2017 the Henry Olcott Award from the American Association of Variable star Observers (AAVSO). He has also served as a president of the ATM's of Boston, and has served as a council member of the AAVSO, and is a past president as well. He has also served on the Board of the IDA. He has worked on light pollution issues, and published several white papers on LP as a member of the AMA council of science and public health. He served on a UN committee (COPUOS) representing the AMA on light pollution for a worldwide effort to control LP and satellite proliferation. Finally, several years ago the International Astronomical Union awarded Dr Motta an asteroid in part for his work on light pollution as well as amateur research, asteroid 133537MarioMotta.

Geoff Chester – 150 years and counting! The sesquicentennial of the U.S. Naval Observatory's 26-inch "Great Equatorial" Telescope

Abstract: On the night of November 12, 1873, a small group of people gathered in the cavernous dome that had recently been added to the main building of the old U.S. Naval Observatory. As the wooden dome shutter creaked open, starlight fell on the 26-inch diameter lens of the Observatory's newest and greatest instrument. It was "first light" for what was, at the time, the largest refracting telescope in the world. 150 years later, the same lens still provides important observational data every clear night from the Observatory's current location in Georgetown Heights, Washington DC. Over the years it has measured the orbits of the moons of Uranus and Neptune, the fainter moons of Jupiter and Saturn, and the astrometric properties of thousands of double stars. In the hands of Professor Asaph Hall, it was used to determine the rotation period of Saturn and recorded the discovery of Phobos and Deimos, the tiny moons of Mars. In this talk I will discuss the telescope's origins, the trials and tribulations of its early years, and its ability to evolve to adapt to 21st Century observing techniques.

Bio: Geoff Chester is the Public Affairs Officer and Historian for the United States Naval Observatory in Washington, DC, a position he has held since 1997. Prior to joining the Observatory staff, he spent 19 years working in the Albert Einstein Planetarium at the Smithsonian Institution's National Air & Space Museum as staff astronomer, photographer, and visual production coordinator. He has always had a keen interest in astronomy and has been actively observing the sky for more than 60 years. He is a member of the Association of Lunar and Planetary Observers, the International Dark Sky Association, and the Northern Virginia Astronomy Club.

Anthony Cook – Creating Griffith Observatory

Abstract: In 1930, the Griffith Trust asked George Ellery Hale, Walter Adams (director of Mt. Wilson Observatory), and Robert Millikan, for help in constructing Griffith J. Griffith's bequest of a public Observatory for Los Angeles in Griffith Park. It fell to Caltech Physicist Edward H. Kurth to gather ideas for the project, and Kurth, in turn, turned to Russell W. Porter for assistance in 1931. The collaboration and Porter's sense of public astronomy expressed through architecture resulted in one of the great landmarks of Los Angeles, Griffith Observatory. Porter became a consultant to the projects architectural firm Austin and Ashley. Tragically, Kurth died in a Pasadena traffic accident in 1934, and changes in project personnel led to Porter leaving the project shortly afterward. Caltech's Rudolf Langer, then Adler Planetarium's Phillip Fox saw the project through completion in 1935 with the aid of artist Roger Hayward. By 1994, Russell Porter's involvement at Griffith Observatory was all but forgotten, but the re-discovery of his concept drawings ended up influencing the direction of the 2002-2006 renovation and expansion of Griffith Observatory.

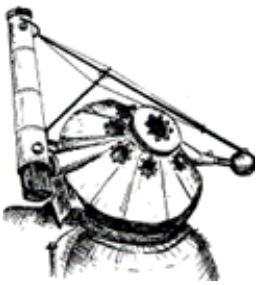
Bio: Anthony became interested in astronomy as a child and began grinding his own mirrors as a 12-year-old. He was a founding member of the Pomona Valley Amateur Astronomers in 1969. He worked for Mt. San Antonio College Planetarium, then for Los Angeles Optical Company from 1980-1990 while also working at Griffith Observatory as a Museum Guide from 1978-1980 a Telescope Demonstrator from 1980-1990, and as the full-time Astronomical Observer from

1980 until his retirement in 2021. He also helped to Organize the Halley Comet Tours International expedition to Australia in 1986. While at Griffith Observatory, Anthony established the important role Russell W. Porter played in the design of Griffith Observatory. Subsequently, Mr. Cook became a researcher at the Caltech Archives, the Huntington Museum, and the Charles Young Research Library (UCLA) to research Porter's contributions to the Griffith and Palomar Observatory projects, and his interactions with southern California amateur astronomers. Mr. Cook has lectured about Porter's work for Griffith Observatory, the Antique Telescope Society, The Riverside Telescope Makers Conference, the Stellafane Convention, the American Astronomical Society, and Caltech. He has written articles for the Griffith Observer Magazine, Sky and Telescope, and chapters in Zum Planetarium (Goesl) and Public Astronomy, Los Angeles Style (DeVorkin/Krupp). In 2023 he became owner of Orrery Press with the goal of making more of Russell Porter's work widely accessible.

Dr. Andrew Boden – Porter in Pasadena: R.W. Porter's Contributions to the Development and Legacy of Palomar Observatory

Abstract: While GE Hale was the animating visionary behind Palomar Observatory, RW Porter was among a small group of key figures who played central and essential roles in creating the observatory and securing it's legacy in public consciousness. Porter's contributions to Palomar development will be described in three narrative arcs: Hale Telescope conception, design, and engineering; Palomar Observatory architecture; and the creation of his beloved "Giants of Palomar" illustration series.

Bio: Andrew Boden received a PhD in Physics from UCLA in 1993, and joined the technical staff at the Jet Propulsion Laboratory that same year. Boden joined the effort to develop long-baseline interferometry at Palomar in1995, and in that context he assumed a Senior Scientist position in 1999 with the Infrared Processing and Analysis Center (IPAC) at the California Institute of Technology (Caltech). In 2008 he became the Deputy Director of Caltech Optical Observatories -- the administrative home for Palomar Observatory -- a position he still serves in today.



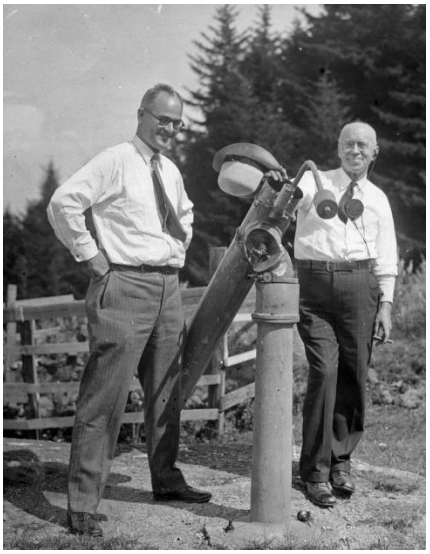
James Hartness in front of his Turret Telescope (date unknown)

Walter Scott Houston
Shadowgram 1973

Dennis DiCicco, wife, and Bill Shawcross 1977

1954 Convention

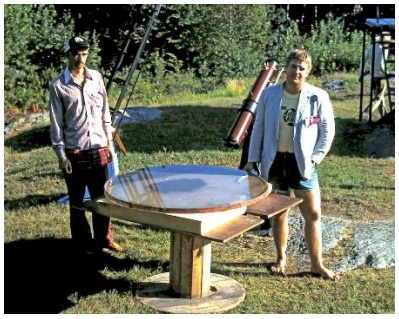
Roger Tuthill 1965 with his 20” scope



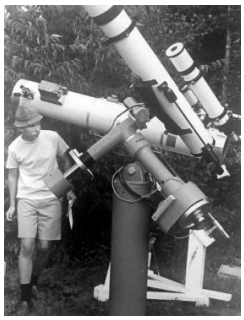
Ingalls and Porter 1920’s

Dr. Henry Paul 1965

1936 Convention



John Briggs with the flat used for testing the 36” Lick lens



David Jackson 1969

Early Stellafane

1927 Convention

The Original Springfield Telescope Makers

Russell Williams
Porter
President

John Moore
Pierce
Vice-President

Oscar Seth
Marshall
Secretary / Treasurer

Oscar Proctor
Fullam
Executive Committee

Carleton Bardwell **Damon**
Exec Committee

Everett Hamilton **Redfield**

Roy Jabez
Lyon

Charles Alexander **Longe**

Guy Elbert
Baker

Raymond P. W. **Fairbanks**

Ernest Vincent
Flanders

Ralph Edward
Flanders