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The Story of Stellafane

Philip Harrington

Smithtown, New York

SECOND PRIZE

HUGHES GRIFFITH OBSERVER CONTEST

Twenty years ago Philip Harrington was assigned to follow the progress of a total lunar eclipse as a junior high school student. He spent his growing-up years in Connecticut, where he became involved in the Stamford Observatory. He went on to earn a college degree in education with a minor in astronomy. Following graduation from college, he worked at the American Museum-Hayden Planetarium in New York City for three years, presenting shows to audiences of up to 750 people, and writing and producing multi-media presentations.

In the two decades since his fateful junior-high eclipse experience, Mr. Harrington has slowly metamorphosed into the strange nocturnal creature commonly identified as the "ardent amateur astronomer." No longer professionally involved in astronomy, he frequents observing programs such as the Long Island Observers Association and the Custer Institute Astronomy Group. He brazenly contributes ardent astronomy-related articles to astronomical periodicals, including *Astronomy* and *Sky and Telescope*, and can occasionally be sighted serving as contributing editor for *Deep Sky* magazine. When he isn't out on a night sky prowling, he might be found fulfilling his duties as the current Chairman of the North East Region of the Astronomical League (NERAL) or instructing fresh crops of potential ardent amateur astronomers in the Introductory Astronomy course for the Vanderbilt Planetarium's (Centerport, New York) evening adult education curriculum.

Mr. Harrington is not unique in his metamorphosis. Legions of similar converts are coming out of the woodwork yearly, judging from the staggering turnout each summer at the Stellafane amateur telescope maker's convention of which he writes.

Every summer, over two thousand amateur astronomers from across the country and around the world travel to Springfield, Vermont, for the annual Stellafane amateur telescope makers convention. Some bring finely crafted homemade telescopes to be entered in friendly competition for optical and mechanical excellence. Others attend each year to hear talks given by some of the best known amateur and professional astronomers and opticians, while still others come simply to meet old acquaintances and make new friends. All are there to witness the beauty of the Vermont night sky.

The first Stellafane convention was held in 1926, but to trace its legacy we must go back further than that. Our story begins with a man named Russell Porter. Born in Springfield in 1871, Porter in many ways exemplified a twentieth century Renaissance Man. He was an artist, an architect, and an engineer, who also had a yen for the unknown. From 1894 to 1906, he was a member of no fewer than ten expeditions to the arctic. It was on these excursions that he began to develop an interest

in celestial navigation, astronomy, and telescopes.

His arctic fever over, Porter decided it was time to settle down and lead a more placid life. By the end of 1906, he had purchased a home in Port Clyde, Maine, and had married. For his livelihood, Porter called upon his artistic and architectural talents to design new oceanfront cottages and renovate older buildings. By night, the crystalline Maine skies beckoned him to learn more about the universe.

In 1910, James Hartness had heard of Porter's interest in astronomy. Hartness, a machinist and president of the Jones and Lamson Machine Company in Springfield, was a long-time friend of Porter's as well as an enthusiastic amateur astronomer. In order to fuel his friend's interest, Hartness sent Porter several back issues of *Popular Astronomy* magazine, the leading astronomical periodical of the day. Porter read each one eagerly.

Contained in one issue was an intriguing article on "Speculum Making," written by Leo Holcomb of Decatur, Illinois. Meant as only a

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The entire assemblage from the first annual Stellafane convention in 1926 includes Russell Porter, standing third from the left and holding a white straw hat. Albert Ingalls is the gentleman just left of center, wearing round frame glasses. The telescope in the foreground models the revolutionary Springfield mount, developed by Russell Porter in 1920. (photograph supplied by Philip Harrington from the Springfield Telescope Makers' archives)

general introduction, the article did not contain actual instructions on mirror grinding. Still, Porter was sufficiently motivated to write to Holcomb and inquire where additional information could be obtained.

Holcomb swiftly replied, and sent along a copy of the book *Glass Working by Heat and Abrasion* by Paul Halsuk. After reading the contents from cover to cover several times, Porter sent away for the necessary materials and shortly set to work.

Though its size is a mystery, Porter quickly finished his first mirror. He became so fascinated with mirror grinding that his second mirror was soon underway. As a matter of fact, Porter enjoyed mirror grinding so much that few of his completed mirrors ever made it into finished telescopes!

Winter nights in northern New England are frequently dark and clear. They can also be intensely cold. Hartness faced this problem years earlier but had learned how to cope with it. He devised an ingenious "indoor observatory" that kept the optics of his 10-inch f/15 refractor outside in the cold to prevent distortion, while the observer stayed in a heated room.

Inspired by Hartness's design, Porter laid

plans for what he called a "den" to be added to his Port Clyde home. Instead of using a refractor like his Springfield friend had, Porter decided in favor of a reflecting telescope. His concept called for two mirrors. One was optically flat to collect and reflect the incoming light to the second mirror, a paraboloid. The latter mirror then focused the light to the eyepiece. When the design was complete, Hartness generously gifted Porter with two finished sixteen-inch mirrors from the John Brashear Company of Pittsburgh for the project. The excellent quality of his new observatory prompted Porter to write an article telling of its advantages and disadvantages for *Popular Astronomy*. His account was eventually published in the May, 1916, issue.

In 1915, Porter accepted an offer from the Massachusetts Institute of Technology to join its architecture department staff as a professor. This forced him and his wife Alice to leave Port Clyde and move to Boston. They continued to holiday at Port Clyde whenever school time would permit.

At the onset of World War I, Hartness convinced Porter to move to Washington, D.C. and work for the National Bureau of Standards. There he worked on a variety of optical instruments to help the war effort.

Shortly after the war's end in 1919, Porter, Alice, and their seven-year-old daughter Caroline, decided to move back to Springfield. There, Porter worked with Hartness at the Jones and Lamson Company to develop an instrument that optically measured the accuracy of screw threads.

Porter would frequently spend free time designing telescope mounts and discussing their feasibility with Hartness, who was elected Governor of Vermont in 1920. Soon another co-worker, Ralph Flanders, grew interested in the science. Flanders was foreman of the Special Tools Department at Jones and Lamson and later became a Vermont Senator. Quite often the three of them would take camping trips into the mountains of Vermont, New Hampshire, and Maine, and astronomy was naturally in the spotlight.

Porter interested so many fellow workers and townsfolk in astronomy by 1920 that a class in telescope making was formed. Sixteen students met with Porter, who instructed them in the fine art of mirror grinding. They got together two or three times a week in an empty room at the Jones and Lamson Company. In the end, all but one person had successfully completed a telescope.

During the time he was instructing his class, Porter came up with a design for a mount that had a stationary eyepiece. This mounting eliminated the neck and back strain experienced by observers when viewing through conventionally supported telescopes. Known today as the "Springfield mount," the first prototype was made in 1920 by Oscar Marshall, a member of Porter's group.

With all of the telescopes complete, several observing sessions were organized by the class. Many sessions were held in backyards, while others took place out of town. Frequently members would climb mountains, telescopes and all, during the day, and observe all night. They usually set them up on either Hawks Mountain, north of Springfield, or Mount Ephraim, south of town. A third spot favored was land that Porter had inherited atop Breezy Hill, to the west of Springfield.

The group met informally for a while, but soon formed an official club. December 7, 1923, was the first meeting of the "Springfield Telescope Makers." The members elected Russell Porter as president, John Pierce vice-president, and Oscar Marshall secretary-treasurer. One of the first projects proposed for the fledgling society was to find a convenient place where members could store their telescopes for ready nighttime viewing. The club voted to build a bungalow on the summit of Breezy Hill, which Porter had agreed to lease to the organization. Later, he generously sold it to the Telescope Makers for one dollar in a deal rivaling the sale of Manhattan Island.

The building, fashioned after the seaside cottages that Porter had designed in Port Clyde, consisted of a main meeting room, where people could gather and talk, and two upstairs bedrooms (a kitchen was added a year later). Plans called for the membership to do the actual construction, with both monetary and material donations made by community and commercial groups.

The summer of 1924 found most of the clubhouse completed. Porter proposed that the site be christened "Stellar Fane," Latin for "shrine to the stars." The name certainly seemed appropriate and was unanimously accepted. Later, the name was shortened to "Stellafane." Exemplifying their deep respect for the universe, a member carved a passage from Psalms 19:1 on the north gable of the roof: "the heavens declare the glory of God."

When the time came to paint the building, the members found that money had run out. After some soliciting, a local merchant agreed to donate a supply of paint. Although he did not specify the color, the telescope makers gratefully accepted his offer and made arrangements to pick up the cans. It was not until after they returned to Breezy Hill and opened the first can that they realized the paint was pink! The Stellafane clubhouse has been painted pink ever since.

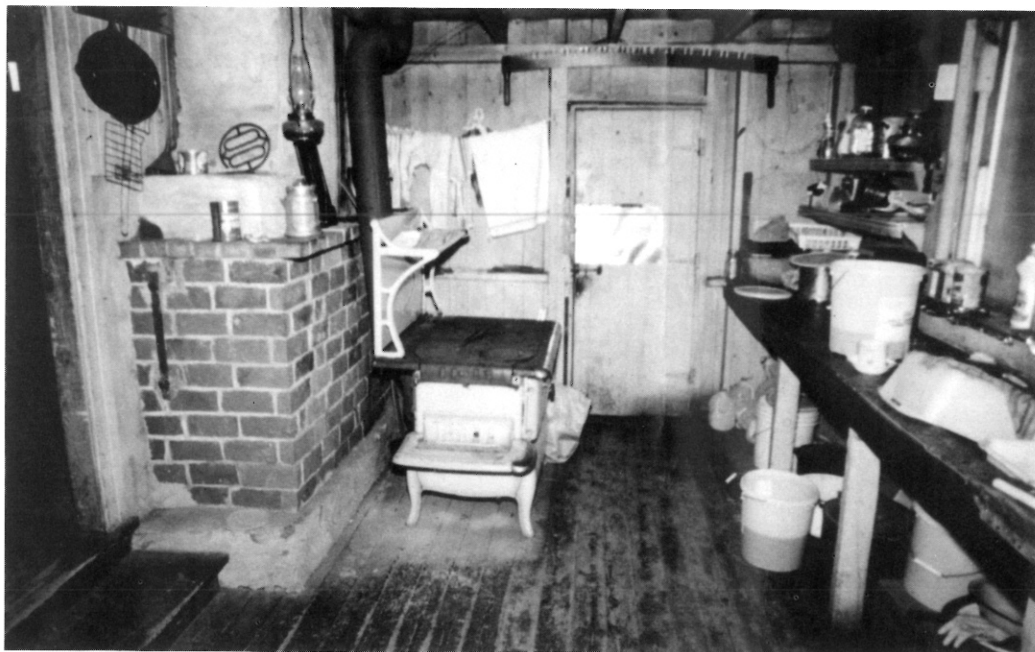
Porter's articles in *Popular Astronomy* caused the word of Stellafane's existence to be spread far and wide. It finally reached the ears of Albert G. ("Unk") Ingalls, an editor of *Scientific American* magazine. Albert Ingalls graduated from Cornell University in 1914, and joined the staff of *Scientific American* nine years later. He had been an amateur astronomer for several years, and had always encouraged contribution from readers by publishing letters and descriptions of amateur equipment.

When Ingalls read about this small group in Vermont, he became intrigued. He had been planning an article on amateur telescope making for some time, and this seemed like an ideal opportunity to gather first-hand information. Arrangements were made for a weekend visit to Stellafane, where he could meet with members and discuss any problems they may have encountered when grinding a mirror. After touring Stellafane by day, they toured the heavens by night through some of the home-made instruments. Ingalls came away very impressed by the telescope makers' "Yankee ingenuity."

The article on telescope making appeared in the November, 1925, issue of *Scientific American*, and immediately drew a tremendous response from the readers. Letters poured into the editorial offices requesting more details on how to make a telescope. Knowing Porter's instructional talents, Ingalls returned to Springfield, and convinced Porter to write two articles



"Rustic" is an accurate description of the clubhouse interior. Upstairs (top), the paneling adds a little down-home charm, while the kitchen (bottom) is a little less than luxurious. One Stellafane conference veteran says that staying there is a lot like camping out. (photographs courtesy of Dennis di Cicco)



on amateur telescope making. They appeared in the February and March, 1926, issues.

If Ingalls thought the response to his lone article was impressive, then he must have looked upon the excitement generated by Porter's pair as phenomenal. Letters were received at a staggering rate from as far away as Brazil, Australia, Japan, England, and India. Because of the overwhelming response, Porter was asked to become a corresponding editor to the magazine.

The articles edited by Porter received such wide attention that the Springfield Telescope Makers decided to invite all fellow hobbyists to Stellafane for a weekend gathering to exchange ideas and compare creations. And so on July 3, 1926, about twenty people made their way up the dirt roads leading to the summit of Breezy Hill and Stellafane.

It is interesting to note that despite the popularity of the hobby, there was only one book on telescope making in print around 1926. This book, *The Amateur's Telescope*, was written by Reverend William Ellison and published in London in 1920. Ingalls felt that the time was ripe to fill this gap and began compiling a text that would contain step-by-step instructions for grinding a high quality mirror. Porter's first two articles from *Scientific American* were included, along with several new articles. Topics in addition to mirror grinding included the making of a one-hundred-foot focal length solar telescope, how to make eyepieces and diagonal mirrors, and construction of a Cassegrain system. Excerpts from Reverend Ellison's text were also reprinted within. Initially, 2,600 copies of *Amateur Telescope Making* were printed in 1926 by the Scientific American Press of New York City. They were sold out in just two years, and the book has since become the classic telescope maker's reference.

The second Stellafane convention was held on July 9 and 10, 1927. Attendance nearly tripled, as 59 registrants and some of their families came to Breezy Hill. Many returned to see friends from the first convention and meet others attending for the first time. As Porter and Ingalls moved from telescope to telescope, electricity seemed to fill the air. After all, where else could a novice telescope maker get instant advice from the patron saints of the hobby? The convention was such a success that the Springfield group decided to make it an annual event.

The popularity of Porter's articles lead to the following announcement in the March, 1928, issue of *Scientific American*:

Beginning with the next issue, the *Scientific American* will contain regularly a special page devoted to the amateur telescope maker, under a humorous heading sketch drawn by the original

mentor of the amateur, Russell W. Porter . . . The new department for the telescope maker will be conducted informally and in the shop talk of the amateur enthusiast.

The Telescope Editor ¹

The column actually began in May, 1928, and was titled "The Back Yard Astronomer." About one year later, the title changed to "The Amateur Astronomer," and six years after that to "The Amateur Telescope Maker." From 1937 to 1948 it was featured as "Telescopics." Despite the name changes the content remained the same, and the column was a tremendous factor in bringing the hobby to its present popularity.

Porter was not only known in amateur circles, but by professional astronomers as well. One who took notice was George Hale, who was then in the early planning stages for the 200-inch reflector on Palomar Mountain. He had read articles by Porter in both *Amateur Telescope Making* and the *Astronomical Journal* and became very interested in speaking with him. Ingalls knew Hale, and through him the two eventually met when "Unk" set up a dinner with Hale and Porter in New York City early in 1928. They talked of nothing but telescopes and mirror grinding. Afterwards, Hale was to recall Porter's great enthusiasm.

In November, 1928, Porter received a telegram from Hale, asking him to come to California "to assist in designing the two hundred-inch telescope."² Porter was speechless. He had always thought of himself as "just an amateur," certainly not a professional. He did not hesitate to accept.

Porter expected that his involvement with the 200-inch project would be brief, and that he and his family would soon move back to Vermont. As he grew more and more involved with his work, however, it became apparent that the move to California was a permanent one. Porter, having relinquished his presidency of the Springfield Telescope Makers to Vice-President John Pierce, dearly missed his friends from Vermont. With great resolve, he maintained an active correspondence with many and found time in his hectic schedule to attend most of the ensuing Stellafane conventions.

One hundred and ten people registered for the fourth annual convention, which was held over the weekend of August 10 and 11, 1929. In the afternoon, Porter moved about to each exhibited telescope, talking to its builder and discussing problems that inevitably crop up in telescope making. After supper, the highlight of the "Twilight Talks" was Porter's first progress report on the 200-inch. He explained that the project would take ten years to complete; it eventually required twice that.

Porter also attended the monthly club meeting on September 6, 1929. With him was a set of plans for a telescope to be built on a massive

rock located to the north of the clubhouse on Breezy Hill. His scheme called for a concrete walled building which doubled as both a shelter and telescope mount. A circular opening in the shelter's north wall, sloped to match Breezy Hill's latitude, acted as both the bearing for the telescope's motorized right ascension axis, used to track the stars, and a viewing portal through which the observer could peer into the eyepiece.

The optical path was the same design as used at the Port Clyde observatory. Light from the targeted object first reflected off a flat, rotatable mirror to the instrument's primary mirror. The image bounced off the concave surface of the primary back through a centralized hole in the flat mirror and into the portal. The eyepiece, placed at the primary's focus, was accessible from inside the observatory.

Since he was unable to make good use of his Port Clyde telescope, Porter donated its two sixteen-inch mirrors to the turret telescope project. After some initial planning, duties in California forced Porter to return, but interest in the project had been sparked.

When the Porters returned to Springfield in the summer of 1930, they were pleased to find that the club's observatory project was progressing as planned. That August, the partially constructed turret telescope was one of the chief attractions at the fifth annual convention.

Society members continued work on the telescope throughout the year, weather permitting. It was finally completed the following summer, just before the sixth convention. Over one hundred people registered that year and were treated to spectacular views of the summer sky with the new instrument.

Porter attended the 1932 and 1933 conventions, but he and Alice were unable to make their annual trek across the country in 1934. In a letter read at the convention, Porter expressed his great disappointment: "This is the first time I have failed to be with you since the movement was founded ten years ago, and nothing short of absolute necessity prevents my attendance this year."³ Though his work on the 200-inch had become more demanding, Porter's main reason for not coming was that his wife had been ill for several months, and he thought it wise not to chance the long journey.

Sadness touched Porter again in 1934. James Hartness died. Porter had always considered Hartness his mentor, since he sent Porter that pack of *Popular Astronomy* magazines that contained the article on "Speculum Making" in 1910.

The annual gatherings were suspended during the years of World War II, from 1942 to 1945. Interest in amateur telescope making did not wane in their absence, however. The first post-war Stellafane took place on August 3, 1946.

It drew over 350 people, the largest crowd ever. Porter, the first speaker on the program, gave an update on Palomar's progress. While its construction had also been interrupted by the war, he expected it to be completed in about a year. Other speakers included Dr. Donald Menzel from Harvard Observatory, Dr. John Strong of Johns Hopkins University, and Dr. Charles Smiley of Brown University.

Porter's failing health kept him from the 1948 convention. In his place he sent a letter which was read at the Twilight Talks. He wrote, in part:

To the Amateur Telescope Makers of Springfield, Vt., and to all other Victims of Mirror Making assembled at Stellafane, Greetings:

You may be sure that I regret not being with you tonight, but the stress of other work has made it impossible. But I am very much with you in spirit.

**Stellafane has a character all its own
... There will never be another Stellafane
... Good night.**

July 27, 1948

**Russell W. Porter
Pasadena, Calif.**

When registration closed, 213 persons had signed in, with the most distant visitor traveling from Buenos Aires, Argentina. Many fine telescopes were shown that year, but one in particular drew the attention of all. Dr. Henry Paul, from Norwich, New York, had just completed construction of his famous f/0.8 Schmidt camera. The deep curves and razor sharp images of its optics made it the most impressive astrophotographic instrument ever built by an amateur.

Early in 1949, Porter set to work on a six-inch objective lens for a refractor he designed. On February 22, while working on the lens, he suffered a major heart attack. Around 11:30 that night, Porter suffered a second, fatal heart attack. The life of the father of amateur telescope making was over. Many honors and awards had been bestowed on Porter over his career. Among the most prestigious were an honorary Doctor of Science degree, presented to him in 1946 by Norwich University (Norwich, Vermont), and the Amateur Astronomers Medal, given to him in 1948 by the Amateur Astronomers Association of New York City. Perhaps the most unusual and lasting tribute to Porter was the posthumous renaming of a lunar crater in his honor. Today, the largest craterlet within the huge crater Clavius bears the name "Porter." His loss was deeply and personally felt by amateurs and professionals alike, in the United States and around the world. The electricity that once permeated the air of Breezy Hill was replaced by an emptiness for years to come.

Since World War II, the annual meetings had grown at such a rapid pace that the Springfield



Quite a contrast to the 1926 gathering, this shot pictures a recent convention at the Twilight Talks, with over 2000 amateur telescope enthusiasts present for the festivities. The 16-inch turret telescope completed in 1930 is no longer in use, but the clubhouse still bustles with activity, especially during the convention. (photograph courtesy of Philip Harrington)

Telescope Makers soon found them difficult to handle alone. Conventions were not held from 1950 through 1953. Fearing that they might have to end altogether, the "Amateur Telescope Makers of Boston," a club founded by some of Porter's disciples, volunteered to help co-host the annual gatherings. Today, the Springfield club is once again the sole sponsor of the meetings, with no lapse in the foreseeable future.

Most of the instruments brought annually are Newtonian reflectors, although nearly every other type of telescope is represented each year as well. There have been many occasions when a telescope is displayed that incorporates a major breakthrough in design, such as Dr. Paul's Schmidt camera in 1948. Another innovative telescope appeared at the August 11, 1956, convention, when John Gregory, of Stamford, Connecticut, unveiled his five-inch modified Maksutov for all to see. Gregory, an optical designer by profession, modified the shape of the correcting lens and had its center aluminized instead of using a separate secondary mirror. His design not only allowed the overall length of the telescope to be reduced but enhanced performance as well.

That year also marked the implementation of

afternoon lectures in addition to the traditional Twilight Talks. The afternoon talks were held behind the clubhouse under a big tent, and dealt with advanced techniques of telescope making, observing, and other aspects of the hobby.

The year 1958 saw the loss of two of Stellafane's leaders. In May, John M. Pierce died. He had been with Porter since the first telescope making class in 1920 and was a favorite speaker at each convention's Twilight Talks, where he would reminisce about Stellafane's golden years. His son, John C. Pierce, took over as historian until 1972, when Walter Scott Houston began his "Shadowgram" remembrances.

On August 13, only four days before the 1958 convention, Albert Ingalls died at age 70. Throughout his life, Ingalls had received many awards for aiding the amateur telescope making movement, including the Blair Award by the Western Amateur Astronomers and the Astronomical League Award. A special moment of silence was observed at the beginning of the 1958 Twilight Talks for Ingalls, Pierce, and Porter.

There is always a great variety in the size of the telescopes displayed each year at Stellafane.

In 1965, they ranged from a two-inch solar projector to Roger Tuthill's twenty-inch trailer-mounted Cassegrain reflector. To make the instrument more convenient to transport from his Mountainside, New Jersey, home to rural observing sites, Tuthill decided to place his telescope on a trailer that can be pulled behind his car. He noted that he had been stopped by the police on more than one occasion and threatened with arrest for "pulling a cannon!"

A most unusual display was exhibited in 1969. Walter Scott Houston, of East Haddam, Connecticut, assembled a solar observatory on Breezy Hill. The enclosure consisted of a motor-driven flat mirror that reflected light to a four-inch objective lens. Inside the small plywood building, an Erfle eyepiece projected the eighteen-inch diameter image of the sun onto a rear projection screen.

The centennial of Porter's birth was commemorated at the 1971 convention. A display of Porter memorabilia was provided by his daughter, Mrs. Caroline Porter Kier. The artifacts included several of Porter's renowned pencil sketches, including some previously unexhibited sketches of the 200-inch Hale telescope. Also shown were several homemade sundials and telescope models. One especially impressive piece was a hand-cast brass model of the 200-inch telescope with observatory.

In the last decade, there have been innovations in the world of telescope making that the founders of Stellafane could not have even dreamed possible. Until recently, most amateurs constructed and used six- to eight-inch aperture telescopes. A ten- to twelve-inch instrument was the envy of all present. Roger Tuthill's twenty-inch was awe-inspiring back in 1965.

Times have changed. Ten-inch instruments are now looked upon as only moderately large telescopes. Wearing the "large instrument" crown today are mammoth Newtonians with mirrors of twenty inches or more in diameter. The largest telescope ever displayed at Stellafane was a 30.5-inch reflector built by John Vogt, of Huntington, New York.

Rather than rely on heavy, costly machined mountings, most of these new generation telescopes are based on the "Dobsonian" design. In the late 1970s John Dobson, an amateur in the San Francisco area, came up with an inexpensive and simple yet highly effective means of supporting huge instruments on altitude-azimuth plywood bases, rotating on bearings made from teflon pads and Formica. The Dobsonian mount has revolutionized telescope making perhaps more than any other innovation in the history of the hobby.

A second recently introduced concept mates the equatorially mounted telescope with the micro-computer. Once the instrument is properly aligned with the celestial pole, the observer

need only type in an object's Right Ascension and Declination coordinates on a computer keyboard, and the telescope will automatically slew to that position. The biggest advantage to a computer-driven telescope is its ability to locate instantly an object without losing any time of searching. Purists feel this takes most of the joy out of observing, since half of the thrill is in the hunt, while to others this is the greatest boon since the invention of celestial coordinates. Regardless of personal opinion, it is clear that the marriage of the computer with the telescope brings amateur telescope making to a new evolutionary stage. What is the next step in telescope making? Only time will tell, but one thing is certain: Whatever might come along next will probably be shown first at Stellafane.

The Stellafane conventions continue to attract more and more people with each passing year. Attendance first broke one thousand in 1974. Most recently, it was estimated that over 2,500 registrants drove up the dirt roads of Breezy Hill.

Why do they do this? What is it about this place that makes so many people return there year after year on an annual pilgrimage? There are many reasons. It might be the excitement of seeing the most exquisitely fashioned amateur telescopes ever created. Perhaps it is the anticipation of meeting and speaking with some of the celebrated amateur astronomers and authors of whom we have all read. Maybe it is the astronomical flea market, where year after year bargains in telescopes, optical components, and books can always be found. It could be the prospect of witnessing the glorious universe from under some of the clearest skies experienced all year. It might be the camaraderie felt by every individual present as the ever-growing family of Stellafane returns for a huge reunion.

In short, it must be magic; the same magic that drove a dozen men up to the same spot sixty years earlier to erect a monument to the heavens. Russell Porter said it best: "There will never be another Stellafane."

NOTES

¹Robert E. Cox. "Albert G. Ingalls, T.N.," *Sky and Telescope*, October, 1958, p. 616.

²Berton C. Willard, *Russell W. Porter* (Bond Wheelwright Co., 1976), p. 177.

³*Ibid*, pp. 233-235.

⁴Letter from Porter to Springfield Telescope Makers, June 27, 1948; reprinted in *Sky and Telescope*, October, 1948, p. 297.

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FRONT COVER

This dapper ironwork astronomer wears his age well; he was photographed for the October, 1948, edition of Sky and Telescope, and to this day he still graces the clubhouse on Breezy Hill with his jaunty pose. The top hat and umbrella are a whimsical part of this familiar Stellafane emblem. (photograph courtesy of Dennis di Cicco)

Astronomical Accident

Colleen Whitney

Pomona College
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The 300-foot radio telescope at the National Radio Astronomy Observatory (NRAO) in Green Bank, West Virginia, collapsed at 10:00 p.m. on November 15, 1988. The observer and the telescope operator on duty at the time luckily were uninjured.

One of the most economical scientific buys in U.S. history, the \$850,000 telescope took only two years to construct from design to finish. Such thrift and speed were due to the telescope's nature as a transit instrument, which means it observed only along the north-south meridian. "Fully steerable" antenna models are far more costly and complex.

Frequent improvements and modernizations kept the 300-foot telescope productive in the quickly changing world of astronomical research. The telescope was used for a number of tasks, such as cataloguing distant radio sources and studying their variability, probing the Milky Way (particularly for the 21-cm emission line of hydrogen), and even searching for extraterrestrial intelligence. The 300-foot also discovered the pulsar in the center of the Crab nebula.

Researchers must now scrounge for observing time on alternate instruments, such as the NRAO 140-foot telescope or the 100-meter telescope operating in Bonn, West Germany. Unfortunately, limitations of the 140-foot can stretch observing time, and the Bonn site experiences interference from the nearby city.

Interference is a hot topic in the bid for speedy replacement of the 300-foot. The national radio-quiet zone surrounding the observatory could be threatened if it is perceived as unnecessary by the general public. Radio silence is golden when operating a radio telescope; if the Green Bank zone is allowed to disappear, the scientific community will lose more than just peace of mind due to interference.

Senators Robert C. Byrd and Jay Rockefeller of West Virginia are anxious that the National Science Foundation (NSF) and its scientific advisors provide plans as soon as possible for a new telescope.

"Senator Byrd stated that 'although it is very unfortunate that the telescope collapsed, this presents an opportunity to construct a replacement telescope to