
SKYSCRAPERS INC.
1932
75
2007
YEARS

75 Years of Skyscrapers
1932 - 2007

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This display was set up in the anteroom of Seagrave Memorial Observatory in 2007 to commemorate the 75th anniversary of Skyscrapers. Photo by Dan Lorraine.

Contents

I would like to thank Raymond Butti, Jr., library associate specialist at the Brown University archives in the John Hay Library in Providence for his assistance in digitally scanning images stored in the Charles Smiley photos folder.

This *75 Years of Skyscrapers* book could not have been possible without the hard work and dedication of Jim Hendrickson. It was a pleasure working with Jim on this project.

It is not impossible that to some infinitely superior being the whole universe may be as one plain—the distance between planet and planet being only as the pores in a grain of sand, and the spaces between system and system no greater than the intervals between one grain and the grain adjacent.

—Samuel Taylor Coleridge

The 8¼-inch Alvan Clark telescope at Seagrave Memorial Observatory. Photo by Dan Lorraine.

Foreword

As Skyscrapers' historian since 1998, and having had a keen interest in the rich history of our society for many years before that, more than three years ago I was well aware that the 75th anniversary of Skyscrapers' founding would soon be approaching. Not only did I begin to collect whatever information was readily available, but I also began to research every avenue I could think of in an attempt to locate historical materials that may have been misplaced or that had been held in private hands.

Skyscrapers' 25th anniversary was celebrated with the publication of *A Quarter Century of Skyscraping*, a wonderful source of information highlighting the achievements of the early years of the society. I used it as a guide to recap those early years, but have also supplemented it with details that have come to light since its 1957 publication.

Some additional details were supplied by long time member Bill Penhallow, and some information, particularly regarding the Smiley/Skyscrapers eclipse expeditions, came from a variety of sources.

One big cache of Skyscrapers documents was donated by the Frederick Hoffman family in mid-July 2000. (Though Hoffman was not a founding member in 1932, he was a charter member when Skyscrapers incorporated and purchased Seagrave Observatory in 1936.) And Hoffman saved everything over the years!

Among the many boxes of materials we have found a few surprises. A couple of black and white photographic negatives show Seagrave

Observatory believed to have been taken at the time Skyscrapers purchased the property. I don't think anyone has seen these images for perhaps 50 to 60 years. They are the earliest known images of our great facility taken by our members. The earliest known image of Seagrave Observatory is the one showing the observatory under construction in 1914.

Another great find was a letter from Seagrave to Skyscrapers thanking them for his election as an honorary member. It is reproduced in this book.

This 75 year anniversary recap does not start where the 25 year book left off in 1957. This book covers the highlights of the entire 75 years.

The Skyscrapers organization has been quite busy during its distinguished lifetime. I think even some of our more seasoned members will learn some facts for the first time. And newcomers to the organization will be amazed at all Skyscrapers has accomplished.

Besides using our 25 year book as a guide for further research, I read all available monthly meeting minutes and all the executive board notes. Some personal correspondence is also drawn upon from some of our long-time members. Though I have been a member for the last 32 years (January 1975), one cannot remember all the details that happened during those three plus decades. So I sat down and read every issue of *The Skyscraper* to refresh my memory. And since *The Skyscraper* newsletter was first published in January 1975, and assuming 12 issues per year, that's a total of 384 issues. It did take a while to review all of them, but that is also why I began this project almost three years ago.

The information is as accurate as the sources from which the data was extracted. Should anyone have any updated information please feel free to contact me.

Where I have offered an opinion on a particular event or topic, that opinion is mine and mine alone and does not reflect the opinion of the organization or its membership.

And please remember one important fact as you enjoy reading and learning about the rich history of the Skyscrapers' organization: We owe the continued success of our society to the dedication and hard work of our members.

David A. Huestis
Historian, Skyscrapers, Inc.

It all started at Ladd Observatory. On May 5, 1932 Charles Smiley called a meeting to discuss the organization of the Rhode Island Amateur Astronomers.

75 Years of Skyscrapers

During late summer of 1930, a 27-year old PhD with a major in mathematics and a minor in astronomy came to Brown University in Providence, Rhode Island. Originally hired as an assistant professor of mathematics, this young man was soon asked to assist in teaching astronomy. In 1931-1932 he took advantage of the astronomical facility at Ladd Observatory (which to this day still houses a 12-inch Brashear refractor) to host a series of open houses. These well attended events attracted a great many folks who had similar interests in things astronomical, including not only members of the general public, but also students from this assistant professor's extension courses.

Perhaps the formation of an astronomical society was inevitable, but this young professor needed a little encouragement. Reverend John G. Crawford, an Episcopal minister of Saunderstown and Wakefield, visited Brown University in 1932 to borrow some lantern slides to illustrate a talk on astronomy. At his suggestion, our young professor, Charles Hugh Smiley, invited a number of people who shared an interest in astronomy to Ladd Observatory to discuss the organization of a group called the Rhode Island Amateur Astronomers[1].

And so it came to pass that the first meeting of this new society occurred on May 5, 1932 at Ladd Observatory where they elected officers, defined the purpose of the organization, set the dues at $2 per year, set the monthly schedule of meetings and formed both a membership and

Above: Charles Hugh Smiley (1903-1977). Founder of Skyscrapers. Brown University News Bureau. **Opposite:** Ladd Observatory in Providence. This photo was taken in 2005 by Dan Lorraine.

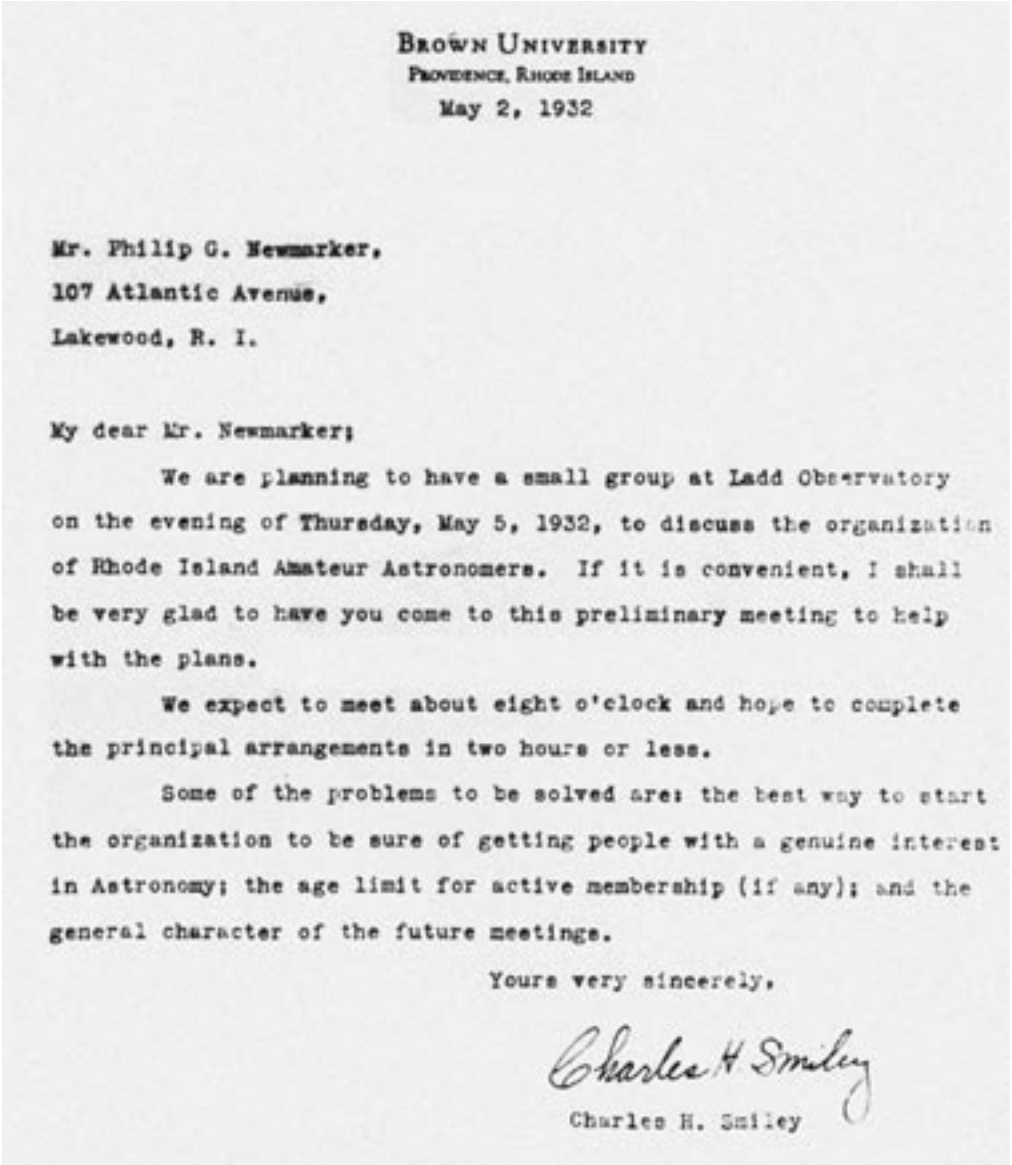
Reverend John G. Crawford (1868-1943), first president of Skyscrapers. Skyscrapers collection.

Charter Members

Professor Leah B. Allen
Miss Mary F. Babcock
Mrs. Henry Bacon
Miss Alma W. Bishop
Lewis J. Boss
J. S. Coleman
R. M. Coleman
Rev. John G. Crawford
George H. Euart
John L. Euart
William E. Ekman
Mr. & Mrs. Stanley S. Gairlock
William T. Grinnell
Mrs. Ernest R. Hager
Frederick W. Hoffman
Samuel M. Holman
Mrs. Helen Holmes
Mrs. Ralph Lombardo
Mrs. Elizabeth H. Morpeth
Philip G. Newmarker
Miss Wilhelmina A. Null
Miss Angeline M. Pettey
Donald Prentice
Donald S. Reed
Mrs. Frank P. Sherman
Dr. & Mrs. Charles H. Smiley
Dr. & Mrs. Byron N. H. Smith
Leland M. Thurston

a program committee. It was also at this momentous occasion that the name "The Skyscrapers," was suggested by Rev. Crawford, also adding Amateur Astronomical Society of Rhode Island to it. And according to those present, "It was considered one of the most appropriate names ever to have been chosen by any astronomical club in the country." The minutes of that first meeting state that the name was chosen by vote. Unfortunately no record of the other suggestions exists.

Although Professor Smiley was the catalyst for bringing this group together, Rev. Crawford was elected Skyscrapers' first President. "…for he had all the fine qualities of leadership, had built his own telescope and observatory, and was an enthusiastic astronomer[2]." First Vice President was Mrs. Elizabeth Morpeth, while Maribelle Cormack[3] was elected Secretary/Treasurer.



BROWN UNIVERSITY
PROVIDENCE, RHODE ISLAND
May 2, 1932

Mr. Philip G. Newmarker,
107 Atlantic Avenue,
Lakewood, R. I.

My dear Mr. Newmarker:

We are planning to have a small group at Ladd Observatory on the evening of Thursday, May 5, 1932, to discuss the organization of Rhode Island Amateur Astronomers. If it is convenient, I shall be very glad to have you come to this preliminary meeting to help with the plans.

We expect to meet about eight o'clock and hope to complete the principal arrangements in two hours or less.

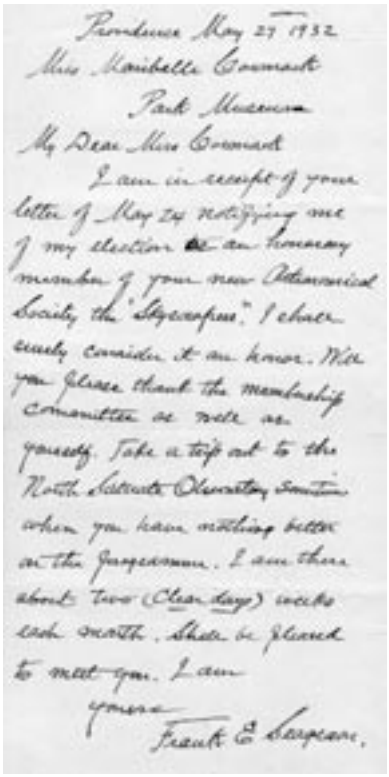
Some of the problems to be solved are: the best way to start the organization to be sure of getting people with a genuine interest in Astronomy; the age limit for active membership (if any); and the general character of the future meetings.

Yours very sincerely,

Charles H. Smiley

Charles H. Smiley

Smiley's invitation to organize a group of Rhode Island Amateur Astronomers. Skyscrapers collection



Providence May 27 1932
Miss Maribelle Cormack
Park Museum
My Dear Miss Cormack
I am in receipt of your letter of May 24 notifying me of my election as an honorary member of your new Astronomical Society the "Skyscrapers". I shall surely consider it an honor. Will you please thank the membership committee as well as yourself. Take a trip out to the North Scituate Observatory sometime when you have nothing better on the programme. I am there about two (Clear days) weeks each month. Shall be pleased to meet you. I am
Yours
Frank E. Seagrave.

Left: Frank Evans Seagrave (1860-1934) at the 8¼-inch Alvan Clark refractor. **Above:** Seagrave's letter to Skyscrapers thanking the society for electing him as an honorary member. Skyscrapers collection.

Frank Evans Seagrave

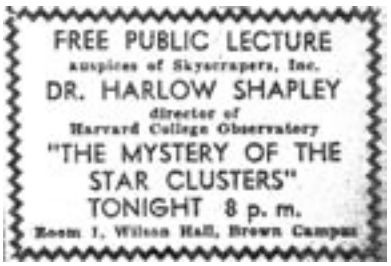
On June 6, 1932, both an Executive and a Regular meeting were convened to lay the groundwork on how the society would conduct its affairs. A Constitution and a set of Bylaws were proposed, discussed and adopted by vote of those attending. Also at this meeting three honorary members were elected to Skyscrapers, among them a 72-year old Frank Evans Seagrave, a well-known Providence amateur astronomer. No one could have imagined that this bestowment began a connection that would provide the foundation for the society's success in the future.

Frank Seagrave must have been notified of his nomination for honorary membership prior to the June 6 meeting for he responded to Skyscrapers on May 27, 1932 in a letter thanking them for electing him to honorary membership, and also inviting the group to visit his observatory on Peeptoad Road in North Scituate, Rhode Island.

It wasn't until September 18, 1933, that Skyscrapers accepted Seagrave's invitation. There "they enjoyed exceedingly observing Saturn, the Hercules Nebulae, Venus, and other stars and planets. It was a beautifully clear night and Mr. Seagrave's generous hospitality

and interesting information made the evening one long to be remembered[4]."

Early on the Skyscrapers became an integral part of the eclipse expeditions led by Professor Smiley. Some members accompanied Smiley on these treks, while others made monetary donations or contributed in other ways to ensure the expeditions' success. The first of many of these adventures occurred on August 31, 1932, when ten Skyscrapers accompanied the Brown University total solar eclipse expedition to Camp Katahdin in Sweden, Maine. Unfortunately they were clouded out on this first joint venture, but many more opportunities were to come later.


FREE PUBLIC LECTURE
auspices of Skyscrapers, Inc.
DR. HARLOW SHAPLEY
director of
Harvard College Observatory
"THE MYSTERY OF THE STAR CLUSTERS"
TONIGHT 8 p. m.
Room 1, Wilson Hall, Brown Campus

Notice of Harlow Shapley talk sponsored by Skyscrapers. Skyscrapers collection.

The Skyscrapers group continued to hold monthly meetings on the campus of Brown University, and some were held at the University's Ladd Observatory. Whether it was a lecture by one of the region's top astronomers, or great views of the universe through Ladd's 12-inch Brashear refractor, Skyscrapers members and guests were always treated to fine programs coordinated by Smiley and various program committee chairpersons. Here's a list of just a few of our distinguished guests during those first five years*: Dr. Peek, Dr. W. H. Stevenson, Leon Campbell, Leah Allen, Professor John Duncan, Dr. Clyde Fisher, John Pierce (ATM's of Springfield, VT), Cecilia Payne, Dr. Fred Whipple, Harlow Shapley, R. Newton Mayall, Professor Anne S. Young and James Stokley.* The list looks like a "who's who" astronomical directory of the time.

During the monthly meeting on August 30, 1934, Professor Smiley noted the passing of Frank Evans Seagrave.

It was during the monthly meeting on August 30, 1934, when Professor Smiley noted the passing of Frank Evans Seagrave on August 15. No mention was ever recorded into the minutes of that meeting regarding the possible fate of Frank's observatory.

As is true today, many years of planning can be spent in preparation for an expedition to observe a total solar eclipse. Professor Smiley started his plans five years in advance for the June 8, 1937, event at Callan Pass in the Peruvian Andes. Smiley was interested in photographing the eclipse with a fast camera. He and several Skyscrapers members began work on a 4-inch f/1 Schmidt camera during the spring of 1935.

Seagrave Memorial Observatory

It wasn't until the passing of Seagrave's cousin, Walter F. Angell (Executor of Frank's estate) on July 7, 1936, when word was received that the Seagrave observatory was listed for sale. A committee was formed at the September 16th monthly meeting with the purpose of contacting "the proper people in connection with the sale[5]."

At the following meeting on October 7, the committee reported on the proposed sale. Much discussion ensued regarding how a purchase of the property could be accomplished. A decision was reached for Skyscrapers to consider buying the observatory, et al; only after a careful inventory and evaluation could be made.

An executive board meeting was held on October 14 to further discuss the purchase of the Seagrave property (a little more than one-half acre, observatory building, 8¼-inch Alvan Clark refractor telescope, and other miscellaneous equipment). It was agreed that three members would visit the observatory to determine its condition and value.

Seagrave's Observatory. These photos were likely taken by Frederick "Jack" Hoffman as part of the evaluation committee's investigation into the purchase of the property. Date of visit is believed to be between October 14 and 27, 1936. Hoffman collection.

Skyscrapers would conditionally offer $750 to the estate and would decide how to pay for it later.

A special meeting was convened on October 27 regarding the purchase of Seagrave's observatory and property. The evaluation committee report was favorable, but the initial $750 offer was declined by the estate. Since there were so few members present to vote on a next course of action, the matter was postponed until the next regularly scheduled meeting.

The November 2nd meeting was better attended and the Seagrave Observatory Committee chair presented a report on the property. A motion was made that "the members raise $1,000 to buy the Seagrave Observatory. It was seconded and passed by unanimous vote[6]." To do so Skyscrapers first had to incorporate.

Incorporation

On November 6 a special meeting was held to amend the constitution and bylaws and to incorporate as Skyscrapers, Inc, with "Amateur Astronomical Society of Rhode Island" appended. Money was pledged from private sources, mostly by the membership. Mrs. Louis W. Downes, Frank Seagrave's sister (Mary Lois), pledged $100 if the observatory could be named "Seagrave Memorial Observatory" in honor of her father and brother.

Incorporation became official on November 17 when the Skyscrapers' charter was issued by the Rhode Island Secretary of State. On the 23rd $1,000 was authorized by the membership to purchase the property from the trustees of the Angell estate. And so a new legacy began for the young group of amateur astronomers. They now had a dark sky site from which to observe with a truly magnificent instrument.

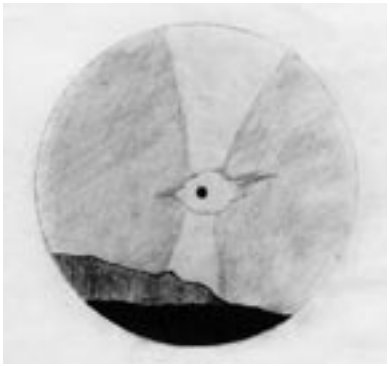
Public outreach has always been an integral part of the Skyscrapers organization. Soon after the acquisition of Seagrave Observatory, Skyscrapers held their first "open night" on January 15, 1937.

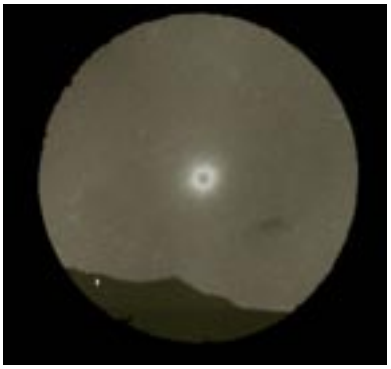
Incorporators of Skyscrapers, Inc.

John G. Crawford
Dr. Charles H. Smiley
Miss Maribelle Cormack
Ralph C. Patton
Archibald C. Matteson
Mrs. Constance H. Reed
Harry A. MacKnight
Franklin S. Huddy
Ernest R. Hager
Dr. Harry L. Koopman

The first public night at Seagrave Memorial Observatory was held on January 15, 1937.

Constructing the Schmidt camera. **Top Left**: J. Frank Morrissey, Frederick "Jack" Hoffman, Donald Reed. **Bottom Left, Right**: Paul Eberhart & Frederick "Jack" Hoffman. Brown University News Bureau





June 8, 1937 eclipse in Callan Pass in the Peruvian Andes. **Top**: Smiley made this sketch from photographs of totality taken with the f/1 Schmidt camera. Note the corona and zodiacal light. This was the first time zodiacal light was ever captured during a total solar eclipse. Smiley collection at Brown University's Hay Library. **Bottom**: An unprocessed scan of an original photo taken with the Schmidt camera. Smiley collection at Ladd Observatory.

The First Eclipse Expeditions

During this time, work was continuing on the 4-inch f/1 Schmidt camera. The finished product was shipped to Smiley in Peru just in time for the June 8, 1937 eclipse. With what was then the fastest astronomical camera ever constructed, Smiley successfully photographed the total solar eclipse and also managed to capture the cone-shaped zodiacal light.

It's obvious Professor Smiley had been bitten by the eclipse bug, but he also conducted valuable research during these beautiful events. In preparation for the total solar eclipse of October 1, 1940, in Curema, Brazil, Smiley designed a 12-inch, f/3.5 Schwarzschild camera, only the second one of its kind in the world. Once again a dedicated team of Skyscrapers members fabricated this instrument. Its three degree field of view was required for Smiley to photograph the Sun's outer corona and hopefully to verify the zodiacal light photograph captured with the Schmidt camera back in 1937.

But first, in April 1940, Professor Smiley, his wife, and Skyscrapers members Frederick Hoffman and Arthur Hoag[7] (also a Brown student) traveled to Georgia to observe the annular eclipse of April 7. Bad weather again prevented the group from making any observations.

Professor Smiley and Arthur Hoag were the only representatives of Brown/Skyscrapers to make the trip to Curema, Brazil, for the October 1, 1940, total solar eclipse, though as usual, many Skyscrapers members made contributions of money, time and effort toward the success of the expedition. Unfortunately clouds obscured the eclipse and no observations were made.

Comet Cunningham

As any organizer of public star parties may have experienced themselves, one never knows when an astronomical event is gong to

Left: Charles Smiley & Arthur Hoag with the Schwarzschild camera built for the October 1, 1940 total solar eclipse in Curema, Brazil. Skyscrapers collection. **Above, top:** Schwarzschild camera showing mirror eye view of secondary mirror and camera holder - left to right: Arthur Hoag, Charles Smiley. **Middle:** Schwarzschild camera ready for October 1, 1940 eclipse expedition, builders from left to right: W. Edwin Stevens, Charles Smiley, and J. Frank Morrissey. **Bottom:** Checking out the Schwarzschild camera - standing left to right: W. Edwin Stevens, J. Frank Morrissey. Charles Smiley kneeling right. Arthur Hoag kneeling left. Brown University News Bureau.

really grab the attention of the general public. Primarily it's dependant upon the coverage the event receives in the media.

Skyscrapers' first big public observing event occurred when it was announced in *The Providence Journal* that Seagrave Observatory would be open to the public for Comet Cunningham viewing on January 1, 1941, from 5:00 to 5:45pm. Skyscrapers expected only about 40 people. Well, between 600 and 800 showed up! Despite the fact that members also provided their own small telescopes and binoculars, many folks never did get to see the comet before it disappeared from view. This time wouldn't be the last that crowds would overwhelm Skyscrapers and Seagrave Observatory. *Read more on page 156…*

The next important event occurred on September 10, 1941, when Skyscrapers bought 0.31 acre between the Observatory and Peeptoad Road and a 0.14 acre piece behind the Observatory for $175. This purchase increased the size of the property to what it is today, only 0.89 acre. The frontage land acquisition provided much needed space to park cars.

During the war years of 1941-1945, the Skyscrapers organization did not disband. However, it was not business as usual. Meetings were occasionally held, but not on a regular schedule. Many Skyscrapers

worked on various optical projects for the War Department, and gas rationing most likely kept members from traveling for pleasure. In the June 1945 minutes of Skyscrapers I found this statement: "In the troublesome days of this war period when the members have not been able to meet as frequently…"

The Passing of Crawford

However, one major undertaking did take place during the war years. In June, 1942, our first president, Rev. John G. Crawford donated an 8-inch reflector to Skyscrapers. Within six months Rev. Crawford had passed on, and his estate included astronomical books and a six-inch refractor which were bequeathed to his beloved Skyscrapers. A revolving 12-foot diameter dome was also part of this donation, and it was eventually moved from Saunderstown, Rhode Island to the Skyscrapers property in North Scituate.

Schmidt camera attached to the Schwarzschild camera for May 20, 1947 total solar eclipse in Araxa, Brazil. Skyscrapers collection.

1947 Eclipse

With the war in Europe finally over, and the Pacific conflict soon to end, Skyscrapers got back to business in quick manner. Eclipse expeditions became the top priority once again. Unfortunately, it may sound like a broken record, but the Skyscrapers/Brown eclipse expedition to Roblin, Manitoba on June 9, 1945, and the May 20, 1947, trip to Araxa, Brazil were both cloudy during totality and no photographic images were taken.

In the meantime, during a 1946 monthly meeting, the consensus of the membership was to return to the pre-war regularity of meetings, having one every month and alternating the meeting night from Monday to Wednesday.

It appears Professor Smiley was the only Skyscrapers member to travel to Bang-Kien, Thailand for the May 9, 1948, annular eclipse. It is reported he had good weather and obtained good observations.

The Crawford Observatory

Work on the Crawford Observatory was started in September of 1948 with Frank Morrissey, Philip Newmarker, Edward and Cynthia Ryan, Edwin Stevens, Bill Penhallow and a few others. A cornerstone was laid on October 9, 1948[8]. The octagonal cement block building was about six feet tall and about 14 feet in size and was completed within two months on a cold December 5 day. Later atop this structure was placed the Crawford dome. Originally given to Brown along with Reverend Crawford's 13-inch reflector, the dome was given to Skyscrapers by Professor Smiley. Crawford's 6-inch refractor tube assembly was kept in the main observatory and carried out to the Crawford dome when in use.

Meeting Hall

One of the most important projects ever started by the membership was the building of our 20-foot by 40-foot meeting hall. This structure was designed to hold about 100 people. Its construction was approved in August 1951 with the stipulation that as much work as possible be done by members of the society (this "tradition" carries over to current day). Some materials were donated, and other monetary contributions from members and friends were solicited. Building began in September of that year, and on May 26, 1952, the building was turned over to the society's Trustees after a dedication ceremony.

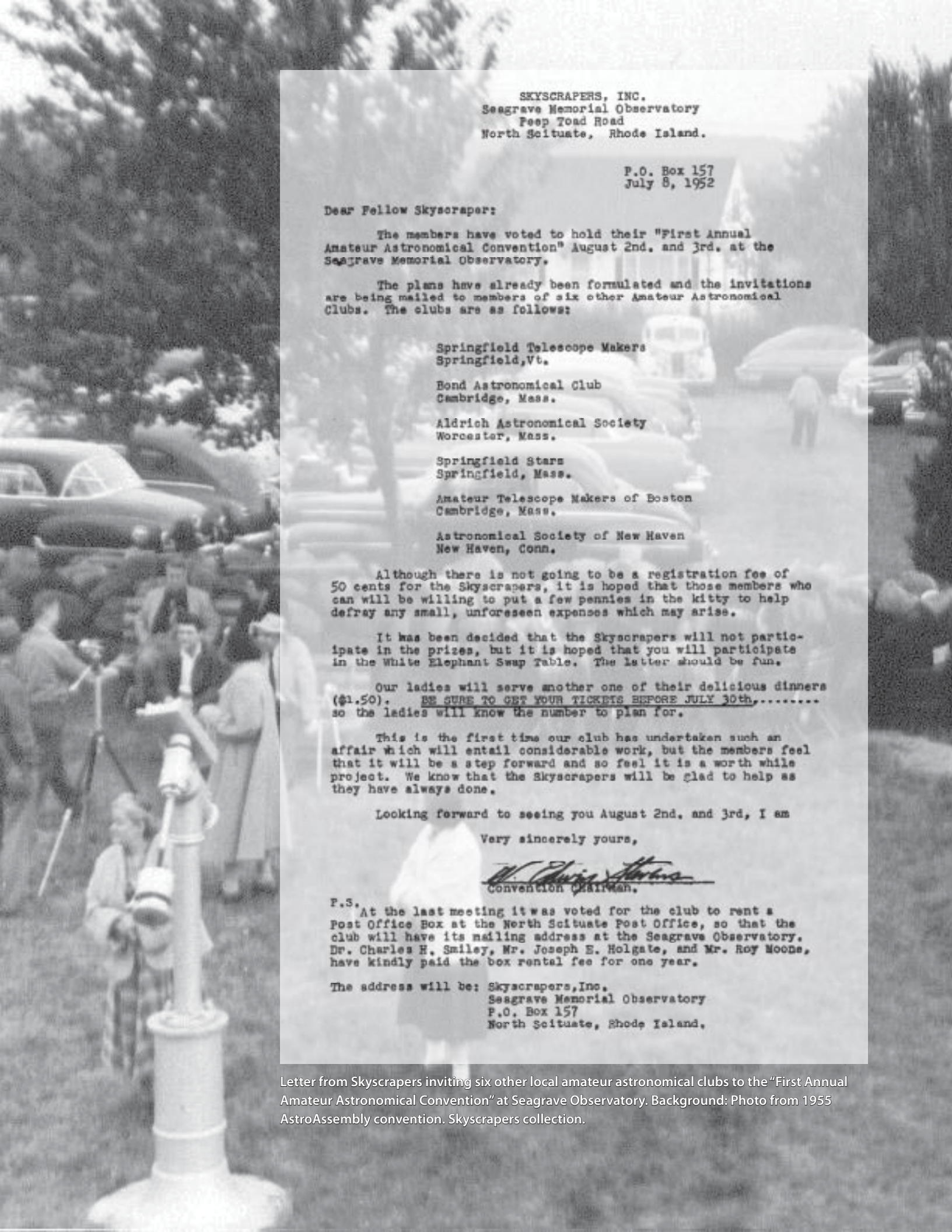
1951 Eclipse

Just after the meeting hall was approved, an intrepid group of Skyscrapers journeyed to Newport News, Virginia to observe the September 1, 1951, annular eclipse, of which no details exist in the society's records.

Left: Seagrave Observatory property showing Meeting Hall and Crawford Observatory circa 1957. *A Quarter Century of Skyscraping*. **Top**: Building the Crawford Observatory. Skyscrapers collection. **Center**: Left to right: Ed Stevens, Edward Ryan, Tommy, Philip Newmarker. Hoffman collection. **Bottom**: The Crawford Observatory as it appeared in 1969. Photo by Dave Dixon.

Crawford's 13-inch reflector is currently on display in the library at Ladd Observatory.

The Meeting Hall as it appeared in 1969. Photo by Dave Dixon.



SKYSCRAPERS, INC.
Seagrave Memorial Observatory
Peep Toad Road
North Scituate, Rhode Island.

P.O. Box 157
July 8, 1952

Dear Fellow Skyscraper:

The members have voted to hold their "First Annual Amateur Astronomical Convention" August 2nd. and 3rd. at the Seagrave Memorial Observatory.

The plans have already been formulated and the invitations are being mailed to members of six other Amateur Astronomical Clubs. The clubs are as follows:

Springfield Telescope Makers
Springfield,Vt.

Bond Astronomical Club
Cambridge, Mass.

Aldrich Astronomical Society
Worcester, Mass.

Springfield Stars
Springfield, Mass.

Amateur Telescope Makers of Boston
Cambridge, Mass.

Astronomical Society of New Haven
New Haven, Conn.

Although there is not going to be a registration fee of 50 cents for the Skyscrapers, it is hoped that those members who can will be willing to put a few pennies in the kitty to help defray any small, unforeseen expenses which may arise.

It was been decided that the Skyscrapers will not participate in the prizes, but it is hoped that you will participate in the White Elephant Swap Table. The latter should be fun.

Our ladies will serve another one of their delicious dinners ($1.50). BE SURE TO GET YOUR TICKETS BEFORE JULY 30th,..... so the ladies will know the number to plan for.

This is the first time our club has undertaken such an affair which will entail considerable work, but the members feel that it will be a step forward and so feel it is a worth while project. We know that the Skyscrapers will be glad to help as they have always done.

Looking forward to seeing you August 2nd. and 3rd, I am

Very sincerely yours,

W. Irving Sterling
Convention Chairman.

P.S. At the last meeting it was voted for the club to rent a Post Office Box at the North Scituate Post Office, so that the club will have its mailing address at the Seagrave Observatory. Dr. Charles H. Smiley, Mr. Joseph E. Holgate, and Mr. Roy Moore, have kindly paid the box rental fee for one year.

The address will be: Skyscrapers,Inc.
Seagrave Memorial Observatory
P.O. Box 157
North Scituate, Rhode Island.

Letter from Skyscrapers inviting six other local amateur astronomical clubs to the "First Annual Amateur Astronomical Convention" at Seagrave Observatory. Background: Photo from 1955 AstroAssembly convention. Skyscrapers collection.

Above left: Photo from the 1955 AstroAssembly convention. **Top:** Connie Reed and Clifford Brown. **Bottom:** John Hopf. Skyscrapers collection.

AstroAssembly

With the new meeting hall completed, Skyscrapers started another new tradition, AstroAssembly. I don't know when it was first called that, but the very first annual convention held by our society occurred on August 2 & 3, 1952. There were 74 people in attendance. At this time I do not know why, but we did not hold the convention during the years 1953 and 1954. The convention resumed in 1955 and became an annual affair —a tradition Skyscrapers are most proud of. We have hosted some of the world's most well-known astronomers, astrophysicists, scientists and astronauts. Here is but a small sample of AstroAssembly speakers: *Dr. James Head III, Dr. William Sheehan, Story Musgrave, Tony Misch, Dr. Peter Schultz, Dr. Janet Mattei, Dr. Dorrit Hoffleit, Dr. Clyde Tombaugh, David H. Levy, Dr. Philip Morrison, Walter Scott Houston, Dr. Sergei Khrushchev and Dr. Chet Raymo.*

And the above select list is just for AstroAssembly during the last 26 years! Since our humble beginnings, the list of speakers who have provided informative talks at our monthly meetings continues to represent the best professionals in their respective disciplines. Here is a short list of some of the more recent presenters: *Dr. Barbara Welther, Dr. Robert Wilson, Dr. Richard Binzel, Dennis di Cicco, Dr. John Huchra, Professor Alan Hirshfeld, Dr. Owen Gingerich, Dr. Brian Marsden, Woody Spring, Evan Haddingham, Andrew Chaiken, Dr. Fred Whipple and Dr. John Wood*[9].

June 30, 1954 eclipse in Natarn, Sweden. **Above, top**: Johnson brothers building the pier. **Above**: Connie Reed. **Right, top**: Four Skyscrapers were on this expedition: Don and Connie Reed, Margaret Smiley and Mary Quirk. From left to right: Mary Quirk at phototheodolite, Don Reed, Margaret Smiley. **Right**: the Phototheodolite, a stable camera platform. Smiley collection at Ladd Observatory.

1954 Eclipse

In 1954, several Skyscrapers journeyed to observe the total solar eclipse of June 30. Clouds and rain spoiled the expeditions to Sweden and Canada. Only Professor Smiley, who had traveled to Pakistan, was successful. Smiley obtained photographs using a special fast film using a "photo-theodolite with especially mounted 35mm motion picture camera[10]." Seems like the average Skyscrapers member was cursed when it came to successfully observing a total solar eclipse.

June 20, 1955 eclipse in Bang Pa-In, Thailand. **Left, top**: Professor Smiley shows the press how the 11-foot solar telescope displays a safe image of the Sun. **Left**: Totality in Bang Pa-In. **Above, top**: Press day on June 18, 1955, a couple of days before the eclipse. Charles Smiley explaining the 11-foot solar telescope. **Above**: Sightseeing at Wat Po in Thailand, June 5, 1955. Smiley collection at Ladd Observatory.

1955 Eclipse

However, their luck finally changed during the June 20, 1955, eclipse trip to Thailand. The Brown/Skyscrapers expedition successfully observed this "Long Eclipse" from the Royal Summer Palace with some of the royal family in attendance. Clear skies provided them with 6 minutes and 24.6 seconds of totality.

Construction of the 16-inch Cassegrain

In 1957, the building of a 16-inch Cassegrain telescope was started by Skyscrapers members. They wanted a rugged instrument that "the kids could swing on" unlike the delicate 8¼-inch Alvan Clark. The refurbished Crawford dome (which the '54 hurricane Carol had severely damaged) was to house this instrument. Phil Newmarker was put in charge of the mirror grinding and Arthur Howarth in charge of the tube and mounting. What a team! Unfortunately Phil developed glaucoma and his doctor said no more optical work. Arthur completed the tube and mounting. Others worked on the mirror but did not have the skill to do the job. The whole project bogged down and the tube and mounting were put in commercial storage.

Above: Skyscrapers' Member Thomas Moran getting comfortable in an "observing coffin" for a night of meteor counting. Photo by Bob Buecher from *The Review of Popular Astronomy*, October 1968, page 9. **Right**: A coven of "observing coffins" in the back field at Seagrave Observatory. Photo by Dave Dixon.

RIMRO

In 1960 a young group of very dedicated meteor observers formed the Rhode Island Meteor Research Organization (RIMRO). The cofounders were Carl Sadler (President), George Gasparian (Secretary) and Ed Turco (Member). Over the years this group existed (1960-1968), thousands of meteor observations were contributed to Dr. Charles Olivier of the American Meteor Society (AMS). Ed became a Skyscrapers member in 1961, and RIMRO was soon asked if they wished to use the meeting hall for their meetings and the grounds for their meteor observations. They wholeheartedly accepted.

It was during RIMRO's presence at Seagrave that meteor observing flourished. Usually one can observe many of the major meteor showers without too much discomfort. You can protect yourself from mosquitoes during the summer months, but when the cold weather settles in, it can cool enthusiasm. Well, a solution was at hand.

Members of the Ottawa Center of the Royal Astronomical Society of Canada (RASC) had built wooden rectangular enclosures based upon a design by Les MacDonald, the meteor coordinator. These

meteor observing chairs were closed on all sides with an opening for an observer's head and shoulders. It was like a wooden sleeping bag. They were also inclined from the horizontal like a lawn chair. The RASC design connected six or more of these boxes to a central hub like the spokes of a wheel so observers could cover the entire sky while reclining.

Simply based on a photograph of one of these boxes, Carl Sadler directed the assembly-line construction in the meeting hall of nine meteor observing chairs for $200. Unlike their RASC counterparts, those of RIMRO remained as separate units. During the cold months of meteor observing, long extension cords were used to provide power for hair dyers to keep the observer toasty. Both in Canada and in the US, these meteor observing chairs became known as observing coffins[11]!

Around 1963, two Pawtucket Junior High School students, Bill Gucfa and Dave Dixon (still members to this day), were introduced to meteor observing when RIMRO was hosting a star party in a local farmer's field. Knowing they could make a contribution to professional astronomers by counting meteors, Bill and Dave joined the group.

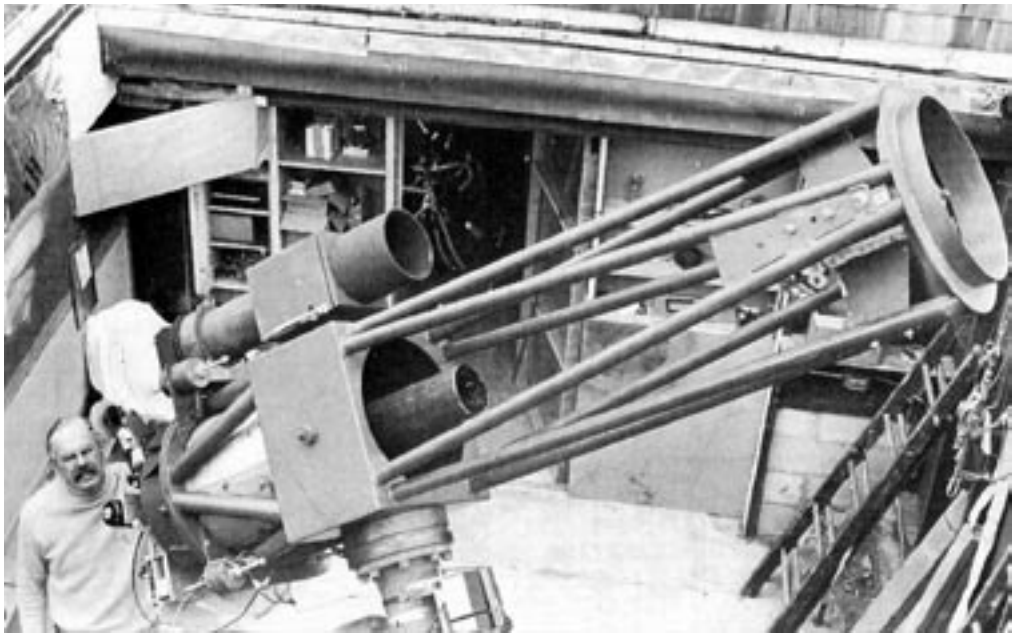
Both young students were highly encouraged by their parents in this activity. Bill commented, "Of one thing I am certain: serious meteor observation when you are first starting out in the avocation of astronomy get's you hooked on all the other thrills the pastime has to offer. Another certainty is that I could have ended up in a lot of trouble as a kid growing up in a tough town. RIMRO saved me (and my family) from this and I will be forever grateful[12]."

Dave was quick to add, "…so the young guys had to rely on others for car rides to and from the observatory. For that matter, my father, Ed Turco, Carl Sadler, and others gave us plenty of help." He also remembered "the work involved in building the chairs, especially the many months of paper drives, trying to raise funds, etc. to buy the lumber and materials needed was quite a task, now that I look back on it[13]."

Dave Dixon also had some interesting memories regarding the use of the observing coffins. "We used thin foam mattresses in the chairs to cushion the seats and noticed small chunks chewed from them at times, probably from small animals and birds for nest building? Who knows! We did find on occasion evidence of visits by others to the chairs in our absence! Stuffed animals, toys and dolls, and other strange objects! The chairs were great in the winter because there was plenty of room for extra blankets and even extra sleeping bags."

"We did arrange them in a circle to try and cover as much of the entire sky as possible. The Perseid shower in 1966 is absolutely my best memory of the chairs as everyone was yelling so loudly because of the intense display we had a visit from the State Police to find out what was going on! Oh yeah, shoveling numerous paths to the chairs by hand was something too."

Bill Gucfa had this to say, "We would count meteors every chance we got, Dave and I, armed with a meteor form, tea and cookies; a transistor radio to listen to the latest tunes by the Beatles and a sleeping bag and lounge chair. On meteor shower nights we would observe from sunset to sunrise (not a difficult task when you are a mere 14 years old and in tremendous awe of the night sky)."



Professor William Penhallow and the 16-inch Cassegrain at his home in Charlestown, Rhode Island. Photo by William Penhallow.

Work on the 16-inch Cassegrain Resumes

In the mid 1960s when Bill Penhallow was president he was asked by Phil Newmarker and Arthur Howarth whether the University of Rhode Island (URI) might be interested in purchasing the parts and completing the 16-inch Cassegrain. After negotiations it was agreed that URI would purchase the tube and mounting only. The unfinished 16-inch mirror was later sold to someone else by Skyscrapers.

Penhallow had been studying optical design while on sabbatical at Indiana University in 1964. The design of the U.S. Naval Observatory's 61-inch astrographic reflector intrigued him. Arthur Howarth assured him that the mirror cell of the 16-inch could easily be modified to take a mirror with a 6-inch perforation to produce a two degree field of excellent astrometric definition. The secondary mirror is an 8-inch optical flat-so it is not a Cassegrain. It so happened that URI had such a flat made by no less than Phil Newmarker! The primary is an f/10.8 parabola with a 6-inch hole made by Cave Optical. By special permission the scope was assembled, tested, and used at the Quonochontaug Observatory of URI which is at Professor Penhallow's home in Charlestown[14].

Charles "Top Gun" Smiley discusses his rendezvous with totality onboard the F-104D Starfighter with pilot Major William A. Cato. Smiley collection at Ladd Observatory.

1963 Eclipse

Total solar eclipses continued to be a prominent activity in the Skyscrapers organization, and Professor Charles Smiley was the "top gun." For the July 20, 1963 total solar eclipse in Canada, Smiley was a passenger in a Lockheed F-104D Starfighter jet that took off from Ottawa, headed for and reached the eclipse path to the northwest. They then turned and raced the Moon's shadow eastward while cruising between 42,000 and 48,000 feet in altitude and at about twice the speed of sound along the eclipse path. This maneuver gave Smiley and the pilot 4 minutes and 3 seconds of totality. The maximum central duration anyone on the ground could have experienced was 1 minute and 39.7 seconds. Smiley got a great look at the eclipsed sun, but the sky was reportedly so bright that he could not detect the zodiacal light. *More photos on page 61…*

Meanwhile his wife Margaret watched totality in a clear sky from Deer Isle, Maine, but another group of Skyscrapers were clouded out in North Bucksport, Maine. *See photos on page 60…*

The Passing of the Old Guard

In the middle to late 1960s the "old guard," many of them charter members, had retired and were passing away. They were either too tired or too old to carry on the Skyscrapers traditions. The observatory fell into a state of disrepair and major upkeep was lacking. The observatory was falling apart. Membership in Skyscrapers was at a decline.

Fortunately a group of young individuals had migrated to the society around this time, for they added that spark that could re-ignite the interest in the organization. The old guard reluctantly began to relinquish control to a younger crowd. They really had no choice, though the remaining charter members and others actually considered selling the assets of the society "and doing something worthy with the money" as one of the newer members Dave Armitage phrased it, and disbanding Skyscrapers as well[15].

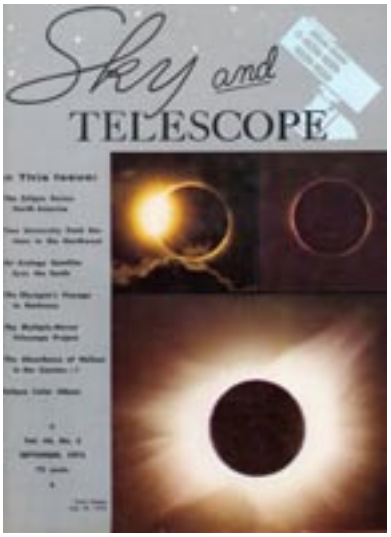
If the society was going to survive, the "old guard" had to let go and let the next generation assume the responsibility they had aspired to over the years. A rejuvenated membership began to turn Skyscrapers around. I believe we owe much to those individuals who, despite some opposition to their ascension to leadership positions, began that road to recovery from which we and our community reap so many benefits today.

1970 Eclipse

On March 7, 1970, the island of Nantucket, just off the Massachusetts southeast coast, found itself within the path of a total solar eclipse. As far as I know at this time, only three Skyscrapers members made it to the island. So many folks attempted to position themselves within the path of totality that the ferry service couldn't accommodate them all. One member, Bill Gucfa, told me he spent the night sleeping on his telescope crate at the Woods Hole dock waiting to get ferried across but to no avail. He drove back to Seagrave Observatory to observe the partial eclipse there with other Skyscrapers members.

Meanwhile, the group of three who did make it to Nantucket, John Hopf and Bob and Marilyn Napier just barely did so. The airport was so backed up that this intrepid group couldn't land there and they put down in an open field. They unloaded their equipment and set up just as totality was beginning.

(I consider the amateur astronomers of this time period to be quite lucky, for they had several total solar eclipses that they could easily and inexpensively travel to.)



Above: September 1972 cover of *Sky & Telescope* magazine showing Dave Armitage's image of the July 10, 1972 total solar eclipse. *Sky & Telescope* magazine. **Top right:** Total solar eclipse, July 10, 1972 at St. Francis Xavier College, Antigonish, Nova Scotia. Connie Reed in doorway, Charles Smiley on steps, and Margaret sitting on chair. Photo by Donald S. Reed. **Below, left to right: 1:** partial phase, Celestron 5 f/10, #4 gel N.D., 1/50 sec; **2:** partial phase, #4 gel N.D., 1/50 sec.; **3:** nearing totality and 2nd contact, #4 gel N.D., 1/40 sec.; **4:** totality with some clouds, 1/40 sec.; **5:** totality, 1/40 sec.

1972 Eclipse

Another great opportunity to chase a total solar eclipse came on July 10, 1972. This time the destination of choice for many Skyscrapers was Arisaig, Nova Scotia. Our members (Dave & Pat Armitage, Ed Turco, Neil Paulhus and Steve Wentworth) were quite successful this time. In fact, David Armitage, then president of Skyscrapers, photographed the eclipse with an 11¼-inch, f/6.6 Maksutov and a Hasselblad camera on High Speed Ektachrome film at 1/250th second. One of his eclipse images was one of three which appeared on the cover of the September 1972 issue of *Sky & Telescope*. Bill Gucfa had driven up by himself. Our group also met some other Rhode Islanders who had made the journey for the eclipse, Steve and Kathy Siok. (Upon their return to "Little Rhody" the couple joined Skyscrapers and have been dedicated members ever since.) Francine Jackson, a former Skyscrapers member, also found herself at this preferred observing site.

At another location to the east, Professor and Mrs. Smiley, Mr. and Mrs. Donald Reed, and Rev. Kierstead and his wife, were also successful in observing totality.

Top: Total solar eclipse, June 30, 1973 from the deck of M.V. Adventurer, 11 degrees 30 seconds north by 43 degrees 03 seconds west. **Below, 1:** 800mm, ND#4, 1/200 sec, partial phase after 1st contact; **2:** 800mm, ND#4, 1/200 sec, partial phase after 1st contact; **3:** 800mm, totality, inner corona; **4:** 800mm, totality, inner corona; **5:** 800mm, totality, outer corona. Photos by Donald S. Reed.

1973 Eclipse

Professor Smiley attended two solar eclipses in 1973. He was invited to be part of the expedition on the ship Canberra to the June 30, 1973 total solar eclipse off the coast of Africa. Of course it was clear. Another Skyscrapers member, Ed Turco, who was booked on another ship, observed over six minutes of totality just off the coast of Mauritania. And on December 24 of the same year, Smiley traveled to Puerto Angel, Mexico for the annular solar eclipse.

Campaigning for the 1970 Skyscrapers' election are David Armitage (left) and Ed Turco. Hoffman collection.

Declining Membership

Once the next generation of Skyscrapers began to run the society, there was a lot of recovery work to do. But the topic that was frequently raised at monthly meetings during the early 1970s was that of declining membership. Unfortunately there seemed little interest in addressing this pressing problem. The only person interested in creating a solution was Dave Armitage.

Comet Kohoutek

Celestial events have always provided the organization with an opportunity to strengthen interest in astronomy through public outreach. That effort often has the potential for increasing Skyscrapers membership as well. Dave Armitage's first opportunity towards that combined goal came in the early winter of 1973. A new comet was heading into the inner solar system. Initial estimates predicted this celestial wanderer from the depths of the solar system as the Comet of the Century. Dave thought Skyscrapers could capitalize on the comet's appearance by hosting a few public open nights for viewing.

Comet Kohoutek was first observed from Seagrave Observatory in the southeast sky on December 2nd at 5:15am. Seven guests accompanied six Skyscrapers members as the venerable Clark refractor provided the view. Because the collective consciousness of Skyscrapers still remembered the crowds that visited Seagrave for Comet Cunningham in 1941, much advanced planning was done for Comet Kohoutek.

With all the Kohoutek hype, Skyscrapers decided to host a series of comet lectures on December 15th, 22nd and 29th at 7:30pm, prior to the comet rounding the sun and moving from the morning sky to the evening sky. Then, beginning on January 5, public viewing would be offered each clear evening through January 20.

Skyscrapers even built a new set of stairs that would connect to our balcony which would provide an exit from the dome. Visitors would

enter the ante-room attached to the observatory, climb the stairs, observe through the Clark, and then exit down the new stairs. Apparently during the Cunningham throng the one-way in/out was a bottleneck which may have slowed the line enough to prevent some folks from ever getting to the eyepiece. The organization did get some excellent publicity, despite the fact that Kohoutek became the fizzle of the century. It did not live up to expectations and was fainter and not as easily visible as predicted.

A note from our January 4, 1974, monthly minutes states that Dave Armitage reported that the comet was slightly visible. The press, who felt like they had been "had" by the astronomers, quickly stopped publishing much information about Kohoutek. Though our December comet lectures were well attended, the news reporting Kohoutek's less than "stellar" performance, combined with the below freezing temperatures in North Scituate, conspired to keep attendance low.

Comet Kohoutek, November 18, 1973. Photo by Richard Lynch

Soon Kohoutek became a bad word that drew criticism from just about everyone. It wasn't the fault of the newspapers or news media, for all they did was to report what the professional astronomers had told them. But the public blamed the news media, who would not soon forget the experience. I love to quote a line from comet discoverer David Levy: "Comets are like cats; they have tails and they do precisely what they want." Folks can relate to that!

Before the interest quickly faded due to the bad press, one of our guests, Bob Horton, remembers waiting in line in the cold, only to have Kohoutek set before he had an opportunity to observe it.

Some visitors to our programs did express some interest in joining our organization, but every report that I have seen indicates the interest was small. We may have attracted a few new members, like the aforementioned Bob Horton, as well as Frank Dubeau and Greg Shanos. (Bob is still an active and valued member. Greg moved to Florida and has sporadically maintained his membership. Frank recently rejoined after too long an absence.) However, the Skyscrapers still needed something else to jump start the organization.

Mall Planetarium

During a monthly meeting held sometime in mid 1974, at what was once Brown University's planetarium, the proverbial light bulb appeared above Dave Armitage's head.

And what an idea he envisioned[16]. To summarize the solution: Dave learned that one of the local shopping malls, a new concept in those days, was willing to host our society by having us put up some display. Skyscrapers would build a portable 25-foot planetarium, create a multimedia show, and display other astronomical topics of interest for mall visitors. The planetarium itself was comprised of a ring substructure about eight-feet high with a door. Draped over this were 12 triangular pieces of a canvas fabric sewn together to form a hemisphere. It hung suspended from the three-story high mall ceiling over the substructure to form the dome. It only took a short time to inflate our planetarium with two large pedestal fans. Talk about an inflationary universe! Brown University's vintage home-made planetarium projector was borrowed to provide familiar constellations.

SKYSCRAPERS, INC. PLANETARIUM

Admit 2

You are also invited to:

SEAGRAVE OBSERVATORY: Public Observing Sessions — Every Saturday Night 7:30 - 10:30.

OUR NEXT MEETING: To be held in the auditorium in Gaige Hall, Rhode Island College, 600 Mt. Pleasant Ave., Providence, Rhode Island. 8 PM, May 8, 1975.

ASTRONOMY DAY: July 19, 1975, 1 PM, Seagrave Observatory.

DIRECTIONS TO SEAGRAVE: Take Rt. 6 West from Providence, bear right on Rt 101. Turn right on Rt 116 (North). Turn left first chance (Peaptoad Rd.). Observatory is on right, about ¼ mile in.

Membership Chmn: W. D. Armitage, 60 Harding St, W.Warwick R

Above (top to bottom), **1**: Testing our "inflationary" universe; **2**: Installing our Portable Planetarium at the Warwick Mall; **3**: Brown University's planetarium projector was used to provide the familiar constellations. The projector is still in use at Ladd Observatory; **4**: Admission ticket to Skyscrapers' star show. **Right, top**: Building the Portable Planetarium in the courtyard at Seagrave Observatory; **Bottom**: Inflating the Portable Planetarium at the Warwick Mall. Photos by Dave Huestis.

Though the project was beset by a few problems throughout its development and deployment, on April 7, 1975, we began what would be a 10-day run (a few days more than normal run for these events because of the foot traffic it generated for the mall). During that time over 9,000 visitors paid 10 cents each to view the Skyscrapers' planetarium presentation. Now that's public outreach!

Once publicity had appeared in *The Providence Journal* about our endeavor, folks were actually making special trips to the mall to see our show. The mall management was ecstatic about the increased traffic, and Skyscrapers netted a profit of $300. Membership grew, our Saturday night open houses were better attended, and the society's reputation increased. *Read the Portable Planetarium Show Transcript on page 161…*

THE SKYSCRAPER

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Vol. 1, No. 1 Published by Skyscrapers, Inc. *(Amateur Astronomical Society of Rhode Island)* January, 1975

PARTIAL ECLIPSE OBSERVED

On Friday, Dec. 13, 1974, despite the predictions of ill luck resulting from the date, Skyscraper members and visitors were rewarded with an excellent event in their own back yard ! A partial solar eclipse was visible on that date, and one of the best places on Earth to view it from was Seagrave Observatory ! The eclipse reached 67% total here in North Scituate, Rhode Island, only 3% short of the "best" site – in Montreal.

Due to the fact that this eclipse was fully total nowhere on Earth, a rare phenomenon was noted – most of our eclipse chasers were in Rhode Island, instead of various exotic locations on other parts of the Earth's surface !

At 8:00 AM observers began arriving to ready their equipment for the 9:31 start. The 8¼" Alvan Clark refractor was stopped down to 2" and filtered with fogged film for photographic purposes. Richard Lynch set up a 2.4" refractor with solar eyepiece for direct viewing. Ed Turco set up a small 4¼" reflector for eyepiece projection and Ed Robinson set up an 8" reflector for the same purpose. Several students from La Salle High School conducted a sky luminosity experiment, while other students set up other telescopes. At exactly 9:31 AM Richard Lynch saw first contact made in his 2.4" and Mike Passano caught it at the same moment in the 8¼" refractor. All went smoothly with only some minor high cloudiness interfering at times. At 11:05 AM (maximum percentage), Ed Turco and Richard Lynch found the crescent solar image being projected through pine needles; this was quickly recorded on film.

A total of about 50 persons viewed the eclipse at Seagraves, after publicity in the local media the previous day.

Everyone who had been on previous total eclipse expeditions noticed something about this eclipse. "I'll tell you what's different about a partial eclipse !" one veteran eclipse-goer was heard to remark. "It's relaxed !"

THIS MAY BE ONE OF THE MOST UNUSUAL PARTIAL SOLAR ECLIPSE PHOTOGRAPHS TAKEN ! DAVE ARMITAGE AND ED ROBINSON TOOK THIS VIEW FROM BEHIND THE OBSERVATORY. THE TWO POINTS OF LIGHT ARE THE TWO TIPS OF THE SUN'S CRESCENT BARELY VISIBLE OVER THE DOME AT APPROXIMATELY THE TIME OF MAXIMUM.

ABOVE ARE SHOWN SOME OF THE PERSONS OBSERVING THE PARTIAL SOLAR ECLIPSE FROM SEAGRAVE OBSERVATORY. SKYSCRAPERS PRESIDENT ED TURCO IS HOLDING A WHITE CARD ON WHICH IS PROJECTED THE ECLIPSED SUN'S IMAGE. THE PROJECTION IS BEING DONE BY THE TELESCOPE ED TOOK WITH HIM TO THE 1973 AFRICAN ECLIPSE !

LEONID RATES ARE UNEXPECTEDLY HIGH

by ALLEN T. HALL and JAMES M. LALIME

This year twelve members of the Skyscrapers Meteor Committee began observation of the Leonid meteor shower at 9:00 PM EST on the 16th of November. While things were being set up in the field behind Seagrave Memorial Observatory the first meteor of the night was sighted. It was a -1.5 magnitude Leonid with a duration of 3.0 seconds, from out of the southeast. After this spectacular opening, nothing but the best was expected for the maximum, which was predicted to occur around 3:00 AM EST for our location.

Rates for the first hour picked up as time went by. Six Leonids were observed during that span of time and things were starting to look good. There was a great deal of excitement as the first hour drew to a close, with the program being executed perfectly and Leonids falling out of the sky when the radiant wasn't even above the horizon !

At 10:10 PM an extremely bright flash of light was observed in the south. This was followed by another flash so bright that the sky's brightness could be compared to that of mid-day ! White cirrus clouds were completely visible ! Even Sirius, of magnitude -1.0, disappeared from view ! The total duration of this phenomenon was about 5 sec. All the power to the observatory was dead and all street lights were out. Because of the loss of power, the rotating shutter was not operable. Later it was learned that a car had struck a pole about a quarter of a mile away, causing a power surge. That was the reason for the first flash; the second flash was caused by a transformer on top of the pole that exploded.

After things had settled down, the temperature began to drop; the Leonid rates, however, certainly did not follow this trend. Between the hours of 12:00 and 1:00 EST twenty-eight Leonids were

See "LEONIDS" – Page 2

A LITTLE DEPTH

John Bacon

Mr. Bacon is a member of The Meteoritical Society and a past President of Skyscrapers, Inc., Amateur Astronomical Society of Rhode Island.

METEORITE TYPES

(A) Stony Meteorites or Stones (old name: aerolites), comprising about 92% of all meteorites that fall. They are made up mainly of the silicate minerals olivine [$(Mg, Fe)_2SiO_4$] and orthopyroxene [$(Mg, Fe)SiO_3$], or a mixture of these, together with a host of minor and trace compounds and elements. Most, but not all, stones also contain nickel-iron specks or globules, in varying amounts, well scattered through them.

See "DEPTH" – Page 5

The first issue of the Skyscrapers' newsletter, *The Skyscraper*. Provided by Rick Lynch.

A partial solar eclipse was visible from the Rhode Island area on December 13, 1974. Unfortunately this was Professor Smiley's last eclipse. He passed away at age 73 on July 26, 1977.

The Skyscraper

Dave was just so full of energy. Once he got an idea he couldn't let it go. At the same time we were planning, constructing and presenting our portable planetarium and show, Dave was also busy with another huge venture. Throughout the years meeting notices were usually sent

Top: Comet West from Beavertail looking towards Newport. Photo by Richard Lynch. **Bottom**: Comet West from Uxbridge, Massachusetts. Photo by Dave Huestis.

to the membership on 3x5 postcards. At other times mimeographed notices were compiled and mailed, especially when the membership needed to be informed of Constitution and Bylaws changes, or for the annual voting of officers and trustees to the organization. Dave decided to produce a newsletter instead.

The first issue of *The Skyscraper* was published in January 1975. At first it was typed on an IBM Selectrix Composer at Rhode Island College. This machine had type balls that produced typeset quality characters that were proportionally spaced. It was still cut and paste after that, but it certainly had a professional look. After a few issues of using this method, the newsletter was mimeographed for a while, then the editor required camera-ready copy, and finally, with advancements in computers and word processing and publishing software, our newsletter took on a more sophisticated look[17].

Comet West

In March 1976 a great new comet became visible in the morning sky around 4:00am—its name, Comet West. West was a beautiful sight in the pre-dawn sky. At third to fourth magnitude it couldn't be missed. The naked eye showed what everyone expects a comet to look like—sort of a tear-drop shape with a tail. But most of the general public missed observing this magnificent visitor to our celestial neighborhood. Why? It was the Kohoutek Syndrome.

Because the media believed they had been hoodwinked before during Kohoutek, they were not going to chance possibly getting blamed again for a non-performing comet. So, they didn't present any major Comet West stories. I eventually called several of the local news outlets to inform them that this comet was no dud and that it could be easily seen in the pre-dawn sky, but to no avail. One of our members, Rick Lynch, did have one of his Comet West photos appear in the March 8, 1976, edition of *The Providence Journal*, but many casual stargazers missed a wonderful sight.

Renovating the Clark Dome

If you are a property owner, you personally know that there is always something that needs to be repaired. Seagrave observatory is no exception. Throughout our records I can follow the trials and tribulations of our fine group of Trustees and members as they tackled one issue after another.

In 1976 it was decided to completely renovate the dome of the observatory that housed the 8¼-inch Alvan Clark refractor. The exterior plywood was removed, but the underlying wooden supports that formed the cylindrical structure were sound. Sheets of Phylon were then fastened to the support structure. This material was also much lighter than any wood product. (We would later find out that the Phylon yellowed with age in the direct sunlight. It wasn't a pretty sight a year later.)

Also, the society needed to solve an occasionally recurring problem. The observatory rotated on seven 5½-inch Civil War vintage cannon balls which functioned as ball bearings. The problem was, though the cannon balls were equally spaced along the metal track on which they sat, the

wood beneath the track was rotting away. This caused a cannon ball or two to slump when it encountered a "soft spot," especially if it occurred at the joint where two sections of track met. First, the ball was not carrying its share of the dome's weight, and second, one of the sections of track was slightly higher than the one adjacent to it. The operator could not deliver enough torque to the wheel that turned the dome to get the ball up and over the "bump". The result: the dome jammed. If that happened you were finished observing for the evening. A more serious though rare side-effect could also occur. Just before jamming, a cannon ball could pop out of its track. If you heard it hit the floor you were OK. This had only happened once since I had become a member in January, 1975.

The solution came to member and engineer Steve Siok, who was inspired by the 21st Olympiad (1976 Summer Olympics) held in Montreal. He was watching a track and field event when the idea came to him. The dome's cannon balls were replaced by 15, 16-pound shot puts (used as ball bearings) with a ball cage for each, equally spaced in the curved cast iron track in which the balls moved. This dome work was carried out and completed during the summer of 1976.

As has been indicated in earlier renovations made at Seagrave Memorial Observatory, Skyscrapers members have undertaken the various construction tasks themselves. However, a contractor was hired in 1979 or 1980 to completely replace the observatory roof and slit.

The Observatory deck was replaced several times in the 1980s.

1979 Eclipse, Gimli, Manitoba

Solar eclipses were still an important aspect of Skyscrapers' field trips—not for any scientific study mind you. It was merely for the aesthetic beauty and awe that such an event can have on an individual. Five Skyscrapers members (Frank Dubeau, Steve Hubbard, Ed Turco, Dave Huestis, Brian Magaw) and two guests (Tom Morgan and Murray Marks) successfully observed the February 26, 1979 total solar eclipse in Gimli, Manitoba on the shores of Lake Manitoba with a group from the Royal Astronomical Society of Canada from Toronto. *Read more on page 62…*

1980 Eclipse, Tanzania

Soon after our Skyscrapers group returned from Manitoba, several of us gave a presentation at Brown University's Ladd Observatory recapping our experience with totality on that eclipse expedition. Plans were underway by the Amateur Telescope Makers of Boston to view the 1980 total solar eclipse from the East African nation of Tanzania. This expedition would entail a two week eclipse/safari centered on the day of the eclipse, Saturday, February 16. I had already begun to think about joining the trip to Tanzania.

In the audience that night was Walter Smith. Walt was working on his doctorate at Brown. Walt also showed some keen interest in this trek, so he and I attended several of the planning meetings up in Boston. It didn't take us too long to sign up for this grand adventure. *Read more on page 64…*

1984 Annual Eclipse, Greenville, South Carolina

Top: Annular eclipse, May 30, 1984 from Greenville, South Carolina. **Bottom:** Karen Lynch, Darlene Magaw at the observing site in Greenville. Photos by Dave Huestis.

Accurate advanced planning can make all the difference in whether you see an eclipse to best advantage or not. The Skyscrapers' expedition to Greenville, South Carolina for the May 30, 1984, annular eclipse is a prime example. The late Brian Magaw and I used some preliminary data and a US geologic survey map to locate an observing site just outside of Greenville. However, we knew that the eclipse path in this area was only five kilometers wide. That's just over three miles for you non-metric folks. We wanted to be as close to the centerline as possible to see the beautiful ring eclipse for the maximum duration. We calculated that it would be 10 seconds. So we decided on Twin Lakes Campground.

We had ordered the United States Naval Observatory (USNO) Circular 166 (which contained all the details about the eclipse path), but it was late in coming. Just one day before Brian was to begin his journey south, the circular arrived. We used it with those same survey maps and lo and behold, the campground we had already picked as our viewing spot was about as close and as convenient as we could get to the centerline. Any closer would have put us into the lake in front of our campsite. All we had to do was step out of our tents that morning and leisurely set up our equipment.

We were quite successful. We observed the annular phase for 10 seconds as predicted. What a magnificent sight it was. A little hard work ahead of time can certainly make all the difference for eclipse chasing.

Comet Halley

Comet Halley on March 12, 1986. Photo by Rick Lynch.

When many of us had first started out in this great hobby of amateur astronomy, there were certain events you knew would happen in the future that you hoped you would be able to witness. For one thing, we thought the year 2001 was a long way off. After the movie 2001: A Space Odyssey we had high hopes. Many of us looked even further into the future for the June 2004 transit of Venus.

But one of the first really big events that Skyscrapers knew was going to excite both the membership and the general public alike was the return of Halley's Comet from the depths of the solar system. The Skyscrapers organization did some fine planning for this interplanetary visitor by developing a slide program about comets in general and Comet Halley in particular. We once again built another set of stairs to provide an easy exit from the dome of the society's Clark refractor.

In all the publicity sent out to the local media, we made sure that people were aware that this was not going to be a spectacular apparition of Halley this time around. But, one never knows why one particular astronomical event is going to draw so much attention. We encouraged parents to bring their children, because these youngsters had a much better chance to see Halley again in 2061 than their counterparts in 1910 had to survive to observe it in 1985-86. (Skyscrapers did honor three folks we affectionately dubbed "two-timers" at one of our monthly meetings. Each had observed Halley in 1910.)

During a few of Seagrave Observatory's special viewing nights we had a couple of hundred visitors show up to get a glimpse of this famous comet. It looked like a little fuzzy patch though our telescopes

—UPI Photo

CAPTURED: To the unaided eye, Halley's Comet appears as a faint dot, but this computer-enhanced photo from the Naval Observatory provides greater detail.

'Halleymania' strikes Scituate

By C. EUGENE EMERY JR.
Journal-Bulletin Science Writer

David Huestis couldn't believe it Saturday night when more than 1,000 people showed up at the doorstep of the tiny observatory in North Scituate to get a peek at Halley's comet.

"It's like Halleymania," said the historian for Skyscrapers, the local astronomy group that runs the Seagrave Observatory on Peeptoad Road. "Everyone's caught comet fever."

Halley's, which last appeared in the skies in 1910 and won't return for another 75 years, is rapidly approaching the sun and will disappear from the evening sky after Jan. 25.

Even before that, the moon will move into the western sky at dusk, its light making it increasingly difficult to see the glowing chunk of ice and rock.

By late next month, after Halley's has swept behind the sun, the comet will be nearly impossible to see from this part of the country. Although visible as a morning star in April, "how many people are going to get up between 2 a.m. and 5 a.m.?" Huestis said.

Last Saturday, some people waited an hour to look through one of the three telescopes at the observatory and to watch a slide show on comets.

Huestis said phone lines at the Scituate police station were jammed by callers seeking directions to the observatory.

As a result, Huestis said, Scituate police have ordered the non-profit group to hire policemen to control traffic Saturday and Sunday nights, when Seagrave will again be open to the public.

Huestis said the crowds then may be just as big. "It's the historical significance of Halley's and the fact that the comet's orbit is so close to the average lifespan that people bring their kids. They know their kids will be able to see it in 2061."

Halley's is in the southwest sky below the constellation Pegasus, marked by four stars that make a giant diamond. It is above and to the right of Jupiter.

Huestis said it becomes dark enough to see the comet around 5:45 p.m. Halley's drops behind the trees at 7:15 p.m. Some visitors, he acknowledged, have been disappointed by what they saw.

"That's because they've seen the pictures taken by the major observatories in 1910, when the viewing was much better, and that's what they expect to see," he said. "They expect something the size of a full moon with a giant tail."

Instead, Huestis said, Halley's looks like "a big fuzzball. You have to look closely and be accustomed to looking at dim objects to see the tail. Unfortunately, 85 to 90 percent of the people have never looked through a telescope."

You can get directions to the observatory by calling the Sky hotline at 331-1362. Huestis said visitors should dress warmly and not expect to see the comet unless the skies are clear.

Left: *The Providence Journal*, January 6, 1986. **Top:** Telescope operators for a Halley's Comet viewing session. **Middle:** Throngs visiting Seagrave Observatory for a glimpse of Halley's Comet. **Bottom:** Halley's comet viewing session - George Cernigliaro's 20-inch Dobsonian. Photos from the Skyscrapers collection.

and a few of the public caught a glimpse of a very short tail. Most people were unimpressed. But on the evening of Saturday, January 4, 1986, an estimated 2,100 people deluged the little village of Scituate to get a look at Halley. Roads were lined with parked cars for at least a mile. Police had to shut down the main thoroughfare of Route 6 for a time. The ground on our property could not be seen due to the throngs of people standing in line to attend a lecture, to observe through the Clark refractor, or to wait in line at one of the other dozen or so telescopes, from a 2.4–inch refractor to a 20-inch Dobsonian, positioned throughout the property to provide a view of Halley. It's one of those events in my life that I will always remember.

Skyscrapers also went to the island of Bonaire in the Netherlands Antilles with the Amateur Telescope Makers (ATM's) of Boston to observe Halley in April 1986. Unfortunately the comet had a tail disconnection event shortly before we arrived, so it wasn't that great. Local folks said, "You should have been here last week!" In fact, Omega Centauri was much more impressive and the sky was so dark that when scattered clouds passed in front of the stars, the clouds were silhouetted by the starlight!

The Double Roll-Off Observatory Building

The double roll-off roof observatory. The Patton telescope can be seen in this 2004 photo. Photo by Jim Crawford.

Early in 1987, an undergraduate student at Brown, Patrick Morrissey, a former teenage member of Skyscrapers, found the old 12-inch, f/3.5 Schwarzschild camera languishing in basement storage at the university[18]. As a project he received permission to completely refurbish the instrument to be used by Brown students for astrometry. An agreement was drawn up between Skyscrapers and Brown that the instrument would reside at Seagrave Observatory in a new 12-foot by 24-foot double roll-off observatory constructed to house this instrument in the south end and our 14-inch Dobsonian reflector in the north end. Brown contributed half of the construction cost.

The camera was completely refurbished before the April 3, 1987, monthly meeting, and optical testing was ready to be done. The original mount was not available, nor was the replacement mount at the time, so the camera was temporarily installed on member Bob Napier's telescope mount. On July 5, the first known guided photographic exposures were taken with the Schwarzschild by Patrick and Bob. The results were out of focus and the optics proved to be poorly collimated. Some work needed to be done for this instrument to become viable for research. As a result of the photographic tests, it was decided the optics would be re-mounted in a new tube. However, the tests did prove one important aspect of this camera. Measurements of the negatives showed that a two-inch diameter circle of film would cover a little over three degrees of sky. This is exactly what Professor Smiley had designed it to do.

That summer of 1987 many dedicated members spent their free weekends building our new observatory building. It wasn't an easy task. To say the least, New England is rocky. Just digging the holes for the cement footings was a tedious job. We also poured concrete pads for the Schwarzschild and 14-inch. After much hard work, the new building was almost finished by the October meeting.

Then George Cernigliaro (a friend of member Steve Hubbard) donated a 20-inch Dobsonian to Skyscrapers. The decision was made to install the 20-inch in the north end instead of the 14-inch. This meant the concrete pad would have to be re-worked, since it had been designed for the smaller instrument.

Once the modifications were completed the 20-inch was installed. It was collimated and ready for use before December, while work slowed on the Schwarzschild camera. It wasn't until July of 1988 that the Schwarzschild camera was assembled in the south end of the roll-off roof observatory sans optics. Unfortunately once this project was

completed, the telescope saw little or no use from Brown students. Patrick graduated and moved away, so any enthusiasm quickly evaporated with his departure. The Schwarzschild sat for a few years collecting dust, not starlight.

A few years quickly ticked by, and it soon became apparent that the main observatory housing the Clark refractor and the meeting hall required some major renovation work. It was decided that Skyscrapers could not accomplish the tasks at hand without some financial help. So beginning sometime in 1990 the Skyscrapers Executive Committee, Trustees and other interested members endured many long meetings to prepare a grant proposal to approach several foundations. The entire process took about one year. We prioritized the work that we thought was an absolute necessity to accomplish first, solicited bids, and wrote the grant. Several grant foundations were approached.

Donation of the Patton Telescope

Meanwhile, Skyscrapers were always busy tackling one project or another. Sometimes more than one simultaneously. We'd no sooner complete one then another would be there to take its place. At our February 9, 1991, monthly meeting, member Bob Howe reported he had been approached by someone who wished to donate a 12-inch Newtonian reflector on an equatorial fork mount. It turned out this telescope was the creation of one of our past presidents, Ralph C. Patton. The estimated 2,000 pound scope and mount sat in an observatory on the third floor roof of the Patton-McGuyer Manufacturing Company in Providence[19]. The company owner, Jeffrey Allen, would donate the Patton scope to Skyscrapers if we would assume responsibility and liability for its removal. However, the telescope would require a permanent housing.

Some time passed before any action was taken on this proposed donation. Did we really need or want another instrument at Seagrave? It was important to this writer, because as historian, this telescope was the creation of one of our presidents. How could we let it pass through our hands?

The Great Hawaii Eclipse Chase of 1991

The total solar eclipse of July 11, 1991, was to prove a challenge to Skyscrapers eclipse goers. The following recap was provided by Scott Tracy specifically for our 75th anniversary celebration, and Dave Huestis has provided additional comments as well. *Read more on page 68.*

Securing the Observatory for Hurricane Bob

Over the years the Trustees have had to disassemble the Clark telescope for one reason or another. Usually it was to make repairs to the instrument itself, or to keep it safe when repairs needed to be made to the dome. However, a pending natural disaster can also strike fear into our organization. We prepared for Hurricane Gloria's visit on September 27, 1985, but this gale moved ashore well south of Rhode Island and no damage was sustained at Seagrave.

But then in 1991, a small and tightly wound up hurricane called Bob headed our way. We usually wait until the last minute since it is

quite a task to disassemble the Clark for transport to a safe location. And since we've done it several times, given enough hands we can accomplish the task very quickly and efficiently. Bob was either going to hit us head-on or skirt the southern Rhode Island coast on August 19. So a team of Trustees and members met at Seagrave the day before to once again dismantle the scope and remove it from the property. Members took various sections home with them so should one storage location be severely damaged, all our eggs would not be in the same basket.

We secured the dome by not only using the building's four hurricane hooks, but also using thick marine rope to further tie down the dome by winding the rope around the ring gear that turned the dome and securing the rope down through the floor and around the cement pier that held the telescope mount. When we were finished with this task, Skyscrapers member Rick Lynch said it "looked like an arachnid condominium." Though the general area received wind gusts in the 50mph range, the observatory suffered no damage. All we had to do after the storm quickly passed was to reassemble the scope.

Meeting Hall Renovations

In November 1991, Skyscrapers' hard work was rewarded when The Champlin Foundations awarded the society a grant for $20,835 to renovate the buildings at Seagrave Memorial Observatory. Their generous funding not only helped preserve a unique part of Rhode Island history, but also assured that Skyscrapers, Inc., The Amateur Astronomical Society of Rhode Island, would continue to educate the public about the wonders of the universe for many moons to come.

Multi-tasking should be Skyscrapers middle name. During the first week of May 1992, the much needed grant renovations were begun. One evening after the meeting hall had been cleared of its possessions in preparation for the work to come, I sat in that empty room to reflect for awhile. My thoughts were of all the famous people we had as our guests in that facility, and all the members of Skyscrapers who had ever attended a meeting, or even all the countless members of the general public whom we had educated, enlightened and entertained during our many open nights. Though the meeting hall was empty of physical possessions that evening, the memories overflowed the room as I relived the past.

When folks would ask how the renovations were coming along I would often tease them and say "you wouldn't recognize the place!" But that statement was not really true. No additions were added nor were any part of the buildings "removed." The shapes were the same, just the dressing was different.

In both the meeting hall and the observatory's ante-room, the contractor had to restore parts of the actual structure. Also, on the inside of both buildings the outdated brown paneling was removed, fresh insulation was added, partial re-wiring was done, plastered walls were installed, new drop ceilings with new recessed light fixtures were hung, and new sub floors were installed and tiled over. The old red theater chairs, which often bled red dye when a person's back was wet from rain or sweat, were unceremoniously tackled, kicked, pummeled, and ripped from the floor and tossed out. In the meeting hall two air conditioner






Top: Meeting hall before (asbestos shingles) and after (red cedar shingles) renovations. **Middle:** Meeting hall interior before (dark panel walls and old theater seating) and after (brighter room, better lighting, shirt friendly seating) renovations. **Bottom:** Clark building before (asbestos siding) and after (red cedar siding) renovations. Photos by Dave Huestis.

sleeves were added, a new front door was hung, and a recess was created in the ceiling for the slide projector when not in use. On both buildings' exteriors the asbestos shingles were replaced with an updated red cedar siding.

The removal of the asbestos was really fascinating. The company encased the buildings with a plastic bubble to prevent the escape of asbestos particles, and the workers wore full environmental suits with air tanks. A large portion of the grant dollars were applied to removing this potentially hazardous siding and then the trucking away of the material.

In the observatory itself a new floor was installed and tiled over. A new door replaced the one that opened to the deck, and another door that formed part of the observing slit that opened to the sky was replaced as well. I had monitored the project from start to finish and even now still find it hard to believe the transformation that was accomplished in only six weeks time. Even before the work had been completed using the first grant, the same Skyscrapers team sat down to discuss the remaining structural priorities. We decided we should immediately apply for a second grant in June 1992. We were not successful in obtaining any grant funding in 1992, but the next year we resubmitted our proposal, and in November 1993, Skyscrapers was awarded a second grant in the amount of $11,800 from The Champlin Foundations.

Above, top: Crane beside Patton-McGuyer building. Note roll-off roof observatory in open position on top of building. **Middle:** Close-up of Patton's observatory. **Bottom:** Moving the tube assembly to the truck for transport. **Above right:** Bob Howe and the crane operator examine Ralph C. Patton's 12-inch reflector. Photos from Skyscrapers collection.

The Patton Reflector Moves to Seagrave Memorial Observatory

At our September 6, 1991, monthly meeting, it was announced that Brown might remove the Schwarzschild camera and re-locate it to Jerimoth Hill, a piece of property it owns on Rhode Island's highest point. The relocation to Jerimoth Hill didn't happen, and discussion continued between Brown University and Skyscrapers as to what would become of the camera.

By the time of the January 25, 1992, executive board meeting, interest in acquiring the Patton scope had increased. The Trustees were instructed to inspect the instrument and evaluate it. At the March 14 executive board meeting, the Trustees reported that the scope was in good shape, requiring only a crane to remove it from the company's roof. But, the Patton would only fit in our roll-off roof observatory after some modifications to the building. At this same meeting it was announced that long time and now lifetime Skyscrapers member and former URI Professor William (Bill) Penhallow was interested in the Schwarzschild camera.

Things soon moved very quickly. Several members evaluated the optics of the Patton one night during March by observing Jupiter. By the May 9 executive board meeting, arrangements had been negotiated to bring the Patton scope to Seagrave Observatory.

At this time, arrangements were finally made for the removal of the Schwarzschild camera. Bill Penhallow assumed possession of this telescope on Memorial Day 1992, and transported it to the Quonochontaug Observatory where with the 16-inch Cassegrain they both now wait, unused, for new lives.

The 20-inch had already been removed from the north end of the roll-off roof building so the work could be started to house the Patton. During a three day "rock fest" in July, a 6-foot by 6-foot by 3-foot foundation-hole was dug for a cement pad support for the Patton. Smack dab in the middle of this excavation was one very large glacial erratic boulder. The

Top: Patton's telescope in new home - left to right: Don Murphy, Steven Siok, Dave Huestis. Right, top to bottom, 1: Dismantling the Schwarzschild for move, 2: Schwarzschild camera in Bill Penhallow's truck for move to Quonochontaug Observatory, May 1992, 3: Steve Siok in north end of roll-off observatory at Seagrave preparing new footing for installation of Patton telescope, 4: Pouring of the new footing for the Patton telescope, 5: Patton telescope tube assembly arrives at Seagrave Observatory - Bob Howe directing. Photos by Dave Huestis.

cement was poured directly onto this natural foundation. On September 25, 1992, the Patton was disassembled on the company roof and a crane with rigging conveyed the instrument down onto a flatbed truck for transport to Seagrave Observatory. The scope was then re-assembled at Seagrave in the newly modified north end of the roll-off roof building.

Preliminary work had been done to rough align the Patton when it arrived. Once installed, the refurbishing of the instrument could proceed. We were fortunate to have Bob Howe to tackle this job. By the time of the annual AstroAssembly convention in October 1993, the scope had been sufficiently completed and a dedication ceremony was held. Our donor Jeff Allen was present, as was one of Ralph C. Patton's sons. Jeff was so impressed with the results that he contributed $100 toward the completion of the project. In November a test of the Patton's plate glass mirror showed it to suffer from severe astigmatism as well as having a turned-down edge. The optics would have to be evaluated for re-figuring or replacement.

Work crew repointing the bricks and other masonry work on Seagrave's old observatory building. Photo by Bob Napier.

Clark Building Renovations

The November 1993 grant was received before the end of the year, but work couldn't be started until the following spring. In preparation for the contractor to begin work, Bob Howe, Don Murphy and Steve Siok removed the Clark objective on April 9, 1994. Taking advantage of this down time, they cleaned the objective once it had been removed from the tube. On the following weekend the Clark was disassembled and the balcony was dismantled.

The major part of this project started on April 25, 1994. Much of this grant funding focused on sandblasting and power-washing the entire historic brick structure of the main observatory, inside and out (interestingly, the silo-shaped structure is composed of two concentric brick walls). Once both the interior and exterior bricks were cleaned, a number of the original window openings were bricked over, and major re-pointing was performed on the rest of the structure. The final step was to coat the bricks with a sealant. When the process was completed

the observatory looked like it was constructed just the day before. Good weather allowed the work to be completed in only eight days. On May 8 the carpenter fixed the leaky roof and also shielded the front and back of the observing slit.

During a June 4 work session, the deck was put back in place and the Clark was reassembled on its mount, and soon thereafter a new drive motor was installed.

Left: May 10, 1994 annular solar eclipse from North Sandwich, New Hampshire. Photos by Bob Horton. **Above:** Partial phase of May 10, 1994 annular solar eclipse from Attitash Village in Bartlett, New Hampshire. Photo by Dave Huestis.

1994 Annular Eclipse

Once again Skyscrapers was fortunate to have another annular solar eclipse that was easily accessible. Several of our members joined my wife and I at Attitash Mountain Village in New Hampshire for the May 10, 1994, annular eclipse. The centerline for this event went just south of our location by only a few miles. The width of this annular eclipse path was much wider than the one we experienced in South Carolina in 1984. Despite being slightly north of the centerline, we would still witness six minutes and eight seconds of annularity. The partial phases before annularity were clear, but clouds blocked much of the view of annularity. We did get a few peeks between the clouds. A group of Skyscrapers joined Bob Horton from his property in North Sandwich, New Hampshire, just about 2 miles south of the centerline, where they were successful in their viewing efforts. And Bob Howe was also fortunate from his viewing location on the shores of Crystal Lake in Snowville, New Hampshire, a few miles further to the east and close to the Maine border.

Comet Shoemaker-Levy 9

On March 24, 1993, Eugene and Carolyn Shoemaker, along with David Levy, imaged a comet orbiting Jupiter which looked "like pearls on a string." Jupiter's tidal forces had broken the comet into at least nine fragments. It was also determined that during mid-July 1994, these fragments would collide with Jupiter.

Eventually, during the week of July 16-22, at least 21 fragments plowed into Jupiter's southern hemisphere cloud tops. From the Earth the actual impacts were not observable, but once the impact area rotated into view, immense scars like irregular bulls-eyes could be seen with even small amateur telescopes.

I couldn't believe my eyes when I first glimpsed the impact areas with my RV-6 reflector. Even more impressive was the view through Skyscrapers' 8¼-inch Alvan Clark refractor. Though the weather prevented continuous observations during the impact week, Jupiter's scars did last for many weeks, allowing members and visitors alike to share this unique experience.

Bob Howe proudly stands beside the Patton telescope which he refurbished for Skyscrapers. Photo by Dave Huestis.

The Patton Reflector Gets New Glass

At the August 10, 1994, executive board meeting, Bob Howe was authorized to purchase a new mirror for the Patton scope. He later ordered a new secondary as well. Both the primary and secondary finally arrived, and by the time of April 7, 1995 monthly meeting the new optics were installed, a preliminary collimation had been accomplished, and the drive was in working order. The restored Patton was finally usable.

The 12-inch Meade

During our March 3, 1995, meeting, it was suggested Skyscrapers spend $2,975 to buy a Meade 10-inch LX200 computerized Schmidt-Cassegrain telescope with a dew shield to install in the south end of the roll-off roof observatory where the Schwarzschild had been. No action was taken at the meeting, but at the March 8 executive board meeting, Bob Napier reported that long time member John Hopf suggested that the observatory purchase the 12-inch model instead. Though that instrument would cost an additional $1,235 ($4,210 total), John would make a $500 donation towards that acquisition. Meeting attendees also contributed $500, and another $425 was later donated by other members.

The 12-inch Meade LX200 Schmidt-Cassegrain telescope. Photo by Jim Crawford.

After individual members bridged the gap in price, the upgrade was approved at the April meeting and the instrument with 44% more light gathering ability was ordered at no additional cost to the society. Member Graham Patterson donated a custom made equatorial wedge for this instrument. The society decided to sell its old 14-inch Dobsonian reflector to make way for the new scope. Modifications had to be made for a pier and a new floor to accommodate the 12-inch Meade.

The scope arrived in time for May's monthly meeting. The concrete pier was poured during June and the new floor was installed in July. The carpet was laid on August 10 and the scope was installed on August 19. By September 1, 1995, the 12-inch Meade was fully operational.

Meanwhile, by May 13, 1995, new heavy duty hurricane hooks fabricated by member Roger Forsythe were ready, and by September 1 they were installed in the Clark dome. At the July 12 executive committee meeting Bob Napier reported a proposal to create a Skyscrapers internet web page in conjunction with Brown University. In August the society had a phone line installed to the meeting hall to facilitate an AstroAssembly program that year.

One sort of innovative adventure Skyscrapers participated in occurred during August through October of 1995. Bess Eaton Donuts was introducing the Jupiter Donut. We were asked to participate in this local promotion. So at the September 1, 1995, meeting our members voted the Jupiter Donut as the official donut of Skyscrapers. (Bess Eaton provided dozens of the Jupiter Donuts for AstroAssembly that year.)

Beautiful visitor, Comet Hyakutake. Photo by Bob Howe.

Comet Hyakutake

During the last week of March 1996, Skyscrapers provided some great views of Comet Hyakutake to about 300 visitors. Sometime between May and June 1996, the organization's 14-inch Dobsonian reflector was sold. I for one was sad to see it go because it had great optics. The large scope was a little difficult to move (as it took two people) since it had been built to withstand a lot of public use at our open nights and star parties. My most fond memory of using this instrument was when Steve Siok and I located Halley's comet at around 13th magnitude on an exceptionally clear and transparent night during late September 1985.

A week later we confirmed our sighting by re-locating the field and the object we thought was Halley had moved.

As of May 8, 1996, Skyscrapers had funds remaining from the second grant, which the society asked The Champlin Foundations for approval to child-proof our deck, install a safety railing for the stairs from the anteroom to the dome, and for improved outdoor lighting. They agreed.

Also during June we installed an answering machine on our phone line so we could keep our members and the general public informed about our meetings, public open nights, and upcoming astronomical events.

By the September 9, 1996, monthly meeting, Skyscrapers could boast a rudimentary web page hosted by Brown University.

Comet Hale-Bopp

Another bright comet - Hale-Bopp - from Pascoag, Rhode Island. Photo by Dave Huestis.

Remember Comet Hale-Bopp? Who doesn't? This absolutely beautiful comet was like Comet West in the sense that it looked like what most folks think about when they envision a comet. Hale-Bopp was too low to be observed from Seagrave Observatory, so an arrangement was made with St. Philips Parish School in Greenville, Rhode Island to sponsor a comet star party on the nights of April 5-6, 1997. The weather did not cooperate. On the 5th only about 100 folks observed the comet and Mars before clouds obscured them both. The following night was completely cloudy and no observing was done.

By April 23, 1997, all the additional grant work on the observatory was completed, which exhausted the funds from The Champlin Foundations.

At the October 19, 1997, executive committee meeting, the organization discussed purchasing a video projector to use with our VCR. This capability would also allow our guest speakers to use their computers so their presentations could be seen throughout the meeting hall.

At the February 11, 1998, executive committee meeting, Jim Hendrickson agreed to be the editor of *The Skyscraper* newsletter.

1998 Total Solar Eclipse in Aruba

Total solar eclipse from Aruba. Photo by Chris Harkins.

Solar eclipses are synonymous with Skyscrapers as you have seen, and 1998 provided members of our society with an opportunity to journey to Aruba for the February 26 total solar eclipse. As far as I know only four of our members participated: Steve and Kathy Siok, Chris Harkins and Hank Renaud. The nighttime observing highlights were Omega Centauri and Eta Carina. Chris remarked to me in an email, "It was also strange to be sitting on a beach at night in shorts and a tee shirt and looking at Orion. It didn't feel right to this northern observer." And yes, the eclipse was seen in all its splendor as well.

Meeting Hall Additions

An important purchase was authorized at the July 10, 1998, monthly meeting—two 10,000 BTU air conditioners. Our summer meetings had become quite unbearable in the meeting hall. (Too much hot air during

our business meetings I suppose!) The in-wall sleeves had already been installed as part of the meeting hall renovations in 1992, which enabled an easy installation.

On Saturday, August 8, 1998, a large scale, three-beam color video projector was donated by Brown and installed in the ceiling of the meeting hall. It proved to be quite finicky. It seemed to take forever to adjust the settings prior to using it. Also, it needed to be kept warm during the cold months, so it was wrapped in a thermal blanket. Our projection screen, a Daylite brand designed for slide projectors, produced some quite annoying diffraction patterns on the screen as well.

1998 Leonids at Grants, New Mexico

The Leonid meteor storm was not far away, so Rick Lynch[20] decided to organize a week-long (November 14-21, 1998) Skyscrapers' expedition to New Mexico. The Leonids would be watched from property Rick owned near the town of Grants, New Mexico. Rick was kind enough to chronicle this expedition especially for our 75th anniversary. *Read more on page 72…*

A major coup for Skyscrapers occurred in 1999. The Scituate Town Council voted to grant Skyscrapers property tax relief in lieu of the organization's service to the community[21].

Another first for the society occurred in April 1999, when a notice was issued by newsletter editor Jim Hendrickson that a printable copy of *The Skyscraper* was now available on our web site. Even with this technological accomplishment, the entire membership would continue to receive the newsletter by postal mail.

The 16-inch Meade

It was now 1999. A few years had passed since our last grant request, and we decided it was time to apply for another one. There were a few odds and ends that needed to be addressed in both the meeting hall and the Clark observatory building, but the main reason behind the grant request was the acquisition of a 16-inch Meade LX200 telescope. Some members feared we were putting an increased strain on our 8¼-inch Clark with all the public open nights. Despite having a 12-inch Meade LX200 and the Patton Telescope, it was thought the 16-inch could be used not only for public nights, but also for digital imaging and internet access. Once again I pulled all the information together that was needed to write and submit the grant.

However, the one thing I did differently was to write the grant in two parts. One part was the request for the monies to accomplish the odds and ends tasks for the various buildings. The second part was for the 16-inch Meade. My logic was this. The Champlin Foundations could possibly reject funding for the telescope but still fund the other projects[22].

I was quite surprised, but very happy, when we were notified in November 1999 that the entire grant funding had been approved.

Observing in the shadow of the VLA. Photo by Rick Lynch.

1999 Leonids at the VLA, New Mexico

During this same time frame, Rick Lynch organized another Leonid expedition to New Mexico (November 13-20). Here is his recap:

After the success of the previous year's trip and the stories told to other Skyscrapers members, a second trip was scheduled. Leading astronomical authorities, most notably Donald Yeomans of JPL in California, had predicted that there was strong evidence for multiple years of high Leonid meteor shower activity. If the previous year was any indication, we should again have another great show.

This trip had a completely new group of Skyscrapers participants. Al Hall brought a group of amateur astronomers from California, whom he had been involved with while working at Lawrence Livermore Labs. This second VLA trip was strictly one of observing, and because of the contact I had made the year before with Dave Finely, he arranged for us to be accommodated at the Visitors Center where we were given complete use of the facility each night.

We were also allowed to set up our equipment in the shadow of one of the 82-foot radio telescopes. We took our nighttime exposures always with the dish as a prop in most photos. Both Al Hall and I got fantastic exposures of the illuminated radio telescope with the darkened sky and Milky Way in the background. We had two good nights of observing, but the Leonids were nonexistent. We saw a few each night but decided that we had seen the maximum the year before. Although disappointed in the meteor shower, the trip was enjoyed by all.

The 16-inch Meade and the New Observatory

The 16-inch Meade telescope was ordered in February 2000, with an expected delivery time of six months. The custom pier arrived in about two months. Well, the scope itself was ready a few months early and it was shipped from Meade on May 8 and received by Skyscrapers soon thereafter. That was the good news. The bad news was, not a single one of us who helped write the grant ever thought about where we were going to put the scope should we get it. In other words, we hadn't planned on a permanent observatory to house it.

But in true Skyscrapers fashion, we rallied and built a 12-foot by 16-foot roll-off roof observatory. Once again it was entirely constructed by our members[23]. Construction began in July 2000. The basic frame was completed before the end of the year and the onset of cold and snowy weather. The wiring had to wait until the 2001 spring thaw, since the power and computer cables were going to be run underground. By July 6 all the work had been completed and the 16-inch Meade soon settled into its new home[24]. The 16-inch roll-off roof observatory was officially turned over to the members at the October 13, 2001, AstroAssembly.

Top: The 16-inch Meade LX200 Schmidt-Cassegrain telescope. **Bottom:** The new roll-off roof observatory housing the 16-inch Meade telescope. Photo by Jim Crawford.

www.TheSkyscrapers.org

In October 2000, Skyscrapers partnered with the Rhode Island Network for Educational Technology (RINET) to provide Verizon high speed internet connection for free, contingent on Skyscrapers fulfilling certain educational programs. RINET fostered the education of children. We would supply the server, hardware and software. RINET would supply the router and assume the expenses for the connection. The connection was installed in May 2001. Brown donated a server for us to use. We were also informed in May that we were able to get the domain name of ***THESKYSCRAPERS.ORG.*** By August 22 the internet server was operational at Seagrave Observatory.

Repairs to the Clark Building & New Paint for the Clark Tube

Skyscrapers was not as lucky with the work that was scheduled on the Clark observatory dome for late summer 2000. Work was supposed to begin during the last week in August, but due to the busy schedule of our contractor, work on the dome did not begin until December. Before work had to be suspended for the winter the observatory floor and deck were replaced and pest control measures were taken. The new propane heater was installed sometime during late January or early February 2001. A bad spring weather-wise and the busy schedule of our contractor conspired to prevent the repairs to the observatory dome roof and observing slit from being completed until September 2001.

While the work was being accomplished on the dome, Bob Horton decided to refresh the Clark tube assembly with a new paint job. Between the May 4, 2001, monthly meeting and the June 1 monthly meeting, the optics were removed from the Clark tube. The tube was disassembled and disconnected from the equatorial mount and pier. The painting was outsourced to an outside contractor. By the August 3 monthly meeting, the telescope tube had been painted white, and the Clark was reinstalled

during a work session on September 1.

Things seemed to slow down a bit as we headed into the new millennium. All the grant work had been finally completed before 2001 came to a close. Skyscrapers could now concentrate on fulfilling our mission to educate folks on the science of astronomy.

A Spectacular Leonid Storm

The meteor storm intensified as morning twilight approached, with three to four meteors visible per second. We did not want the sun to rise because that meant the end of the show.

November 2001 meant the possible resurgence of the Leonid meteor storm. Rick Lynch noted, "…many Skyscrapers traveled to southern Rhode Island to the grounds of the Frosty Drew Observatory in Charlestown. From about 3:30am until strong twilight interfered, we again had a surge in activity comparable to our 1999 trip to New Mexico."

At the same time, Dave Dixon and Dave Huestis observed from the dark skies of Buck Hill in Burrillville. What a show indeed! Everywhere one looked you could see five or six meteors at once streaking across the heavens. It was fantastic. Even in bright twilight we could still see several of the brighter meteors as they disintegrated. We estimated about 125 meteors per hour from about 2:15 to 3:15am. We later learned the peak occurred a little farther west. We missed even greater numbers of meteors by only an hour or so. But it didn't matter. Dave and I will never forget that great experience.

Al Hall & The First Trips to White Mountain, California

In the meantime, two Skyscrapers members, Bob Horton and Frank Dubeau, decided to visit Al Hall in California and to observe from a dark sky site high at White Mountain in the Sierra Nevada range. Al Hall had joined Skyscrapers as a junior member back in August 1972. He eventually went off to college, then returned to Skyscrapers around 1990. A few years later he obtained a job in California. You can read more about Al Hall's introduction to our organization in the special Member Profiles section of this book. Al wholeheartedly agreed to chronicle all the Skyscrapers adventures to California's White Mountain. *Read more on page 75…*

By September 2002, *The Skyscraper* newsletter was now published on the web and was downloadable and printable as a PDF formatted file. And just more than a year later all members who had email were receiving the newsletter electronically. With more than 75 members having email capabilities, this action saved the organization in publishing and postage expenses.

Clark refractor just after 2003 refurbishment. Photo by Dave Huestis.

125th Anniversary Restoration of the Alvan Clark Telescope

Unfortunately the paint job on the Clark tube had been done improperly and it was already peeling less than a year later. Refurbishment was delayed until 2003.

On March 7, 2003, Skyscrapers members voted to purchase a SBIG ST9EN CCD camera from member Bob Napier. Unfortunately the camera saw little action at the time, but interest and usage increased in late 2005 and early 2006 when training sessions were offered for members.

Between May 3, 2003, and the July 12 monthly meeting, the Clark telescope was once again disassembled so the paint could be stripped and redone. Al Hall, who had returned east in February 2001 after spending time in California, was the project leader for this undertaking. The restoration consisted of painting the tube brick red, polishing all

the brass, rebuilding the clock drive by reassembling original parts and machining missing parts, and rebuilding drive gears[25].

By the August 8 monthly meeting the Clark objective had not been installed because other work needed to be completed first. After the August 9 work session the Clark was once again a functional instrument and was proudly exhibited during AstroAssembly, October 3-4, 2003.

Also at our August 8, 2003 monthly meeting, it was learned that Raytheon was willing to donate a 15-foot Ash Dome. A quick decision was required, and Skyscrapers decided we couldn't pass up the opportunity. The dome was dismantled and transported to Seagrave Observatory where it was stored for at least a year. We began to ask ourselves what we were going to do with it. No satisfactory answer was offered. The society decided to sell the dome on Ebay in September 2004 for $2,559. About $2,000 of the proceeds was used to purchase a desktop digital projector to replace the antiquated 3-beam projector monstrosity that was suspended from the meeting hall ceiling.

Trips to Hartness House Inn and Van Vleck Observatory

During 2004, field trips flourished under President Dan Lorraine. On February 21 of that year, 16 Skyscrapers journeyed to the Hartness House Inn in Springfield[26], Vermont. This former Governor's mansion is now a beautifully restored country inn. What makes it of interest to amateur astronomers is the fact that an underground tunnel connects the main house to a 10-inch Brashear refractor which is in a heated room isolated from the outdoors. This design was chosen so Governor Hartness could comfortably observe during Vermont's often harsh winters.

There is also a telescope museum, which is a treasure trove for historical buffs. As far as I am concerned, the most unique piece of the collection is one of Russell W. Porter's "Garden" telescopes. Other Porter works appear in this museum, including many of his water color artwork pieces.

Unfortunately the weather did not cooperate and Skyscrapers members were unable to observe through the 10-inch refractor. Still, the accommodations and food were great.

On March 20, Skyscrapers drove out to nearby Middletown, Connecticut, to visit Van Vleck Observatory at Wesleyan University. This wonderful facility houses a 20-inch Alvan Clark refractor. Great views of Jupiter and Saturn were enjoyed by all who attended. Dan recently told me that he remembers observing dusky markings on Ganymede. Now that is impressive.

American Museum of Natural History

Less than one month later, on April 10, Dan lead a bus trip to the American Museum of Natural History in New York City. You could easily spend more than one day at this museum, especially if you read each and every exhibit descriptor. Of particular interest to our members was the Arthur Ross Hall of meteorites, which had recently been renovated. Meteorites of all shapes, sizes and composition were on display.

And of course the famed Hayden Planetarium is always a must see for anyone interested in astronomy. The new Rose Center for Earth and

Fifty-five members of Skyscrapers and the Astronomical Society of Greater Hartford visited the American Museum of Natural History in New York on Saturday April 10th, 2004. Photo by Dan Lorraine.

Space was also a highlight of our museum visit. Any space enthusiast could spend their entire visit in the Rose Center's Halls. There are many hands-on and interactive exhibits for both the children and the "kid" in all of us adults. The main attractions are the Gottesman Hall of Planet Earth, the Cullman Hall of the Universe, the Cosmic Pathway, and the Scales of the Universe. I could have spent the entire day just in the Rose Center itself, but the main museum has even more exhibits of great interest.

I seem to have bumped into more Skyscrapers members among the Fossil Halls than any other exhibit in the museum. And why not? AMNH has a great collection of dinosaur fossils throughout its spacious floor plan. It was difficult to leave the museum for the bus ride home. Everyone was quite tired, but it was a fantastic field trip.

2004 Transit of Venus

The year 2004 was also to provide amateur astronomers another one of those rare events which many of us had heard about 20 or 30 years prior. I'm talking about the Transit of Venus on June 8, 2004. Our organization had members positioned throughout Rhode Island. Some of us were located down at the Point Judith lighthouse, while others were on the island of Jamestown in the middle of Narragansett Bay, and others were scattered throughout the New England states.

Clouds did plague many of us as the Sun rose, but we did manage a few quick glimpses of Venus in transit even with the naked-eye, because the clouds and atmosphere filtered the sun's brightness. At Point Judith we lost the Sun for more than an hour due to the persistent clouds, but fortunately the sun rose above Mother Nature's cloud curtain and we were able to observe the final stages of the transit as Venus exited the solar disk with a great "black drop effect." What a fantastic event to observe. Despite the clouds early in the observing, I wouldn't have missed this event for anything. Though I had prepared myself by researching and writing about past transits, I was still amazed at the size of Venus' silhouetted disk. Hawaii 2012, here we come!

Transit of Venus, near 3rd contact, June 8, 2004. Photo by Jim Hendrickson.

Rick Lynch reads historical documents from "the pulpit" while serving as our tour guide at America's Stonehenge, June 26, 2004. Photo by Jim Hendrickson.

Oak Ridge and Mystery Hill

On June 26, Skyscrapers once again took to the road to enjoy a couple of New England's astronomical treasures. Our first stop was the Oak Ridge Observatory in Harvard, Massachusetts, where our group was given a private tour. This facility is under the auspices of the Harvard-Smithsonian Center for Astrophysics. The showpiece at Oak Ridge is the Wyeth 61-inch reflector. This telescope, the largest instrument east of the Mississippi, was being used for the Optical SETI project.

Basically the telescope searches for theoretical high intensity laser pulses deliberately transmitted in our direction by an advanced civilization. These brief, but very bright pulses could be used to communicate over vast distances.

Also, a highlight of the tour was the 84-foot steerable radio telescope. This instrument had been used by Professor Paul Horowitz's radio SETI search until 1999 when a wind storm damaged the instrument. The weather was not the greatest this day, for it drizzled on and off again. Nevertheless, we all had a wonderful time. Just before we departed Oak Ridge a more steady rain began to fall.

Our next destination was North Salem, New Hampshire, where Rick Lynch provided a tour of Mystery Hill, America's Stonehenge. This unique site contains many structures, including stonewalls and standing stones, which have astronomical implications. No one knows for sure when this site was developed or by whom. However, careful study has discovered that when one stands in the center of the complex, alignments with outlying stones reveal its builder(s) had a keen understanding of the Sun's motion through the sky. For one can note the equinoxes and solstices just by watching the rising and setting sun.

Mystery Hill still evokes much controversy. Did some local farmer with a strong knowledge of astronomy create this site in his free time, or did a group of Native Americans inhabit this place long ago? Or did Neolithic Celts take refuge on this hilltop even earlier in New England's history? Or did Irish Monks once settle here as one theory postulates? One day we may know for sure. But despite the controversy, Mystery Hill is still a great place to visit. Skyscrapers members were quite impressed. Just after we arrived the rain ceased and our group was able to explore the site with great enthusiasm, poking into every stone chamber and exploring all the alignments with Rick Lynch as our guide.

2004 Trip to White Mountain, California

Another year had come and gone before talk started about making a return trip to White Mountain. Bob Horton decided to do a little investigating about the area around White Mountain and proceeded to perform a "Google" search. Much to his surprise he found out that there was a University of California research center just ten miles further up White Mountain Road from where we had been setting up in the past.

Bob made some inquiries and found out that we could rent the facility for several evenings for $50.00 per person per night. The only requirement was that we had to have a minimum of ten people. Well, this sounded great! All meals were included and there were showers and bunk rooms. Everything an amateur astronomer could want! Bob went ahead and booked the facility, and we began to let Skyscrapers members know that we were planning another trip out to California.

Well the response was astounding. Twenty-one members decided to make the trip that year. Additionally, the California boys, Bob Jarret and his friends Mike and "Wild Bill" decided they would join us again. They even promised to bring along the 22-inch Dobsonian.

Naked eye, the Milky Way stretched from horizon to horizon and offered up more detail than we've ever seen before! Objects like the globular cluster M13 in Hercules, the spiral galaxy M33 in Triangulum, and the Lagoon Nebula M8 in Sagittarius were all naked eye objects under these very dark skies! *Read more on page 85…*

TheSkyscrapers.org Gets a New Host

During the early fall of 2004, RINET decided to withdraw its support of our internet connection. Fortunately our webmaster, Jim Hendrickson, worked for a company called Newfangled Web Factory. As of the November 5, 2004, Skyscrapers monthly meeting, Newfangled assumed the hosting of our web site free of charge. Had we not been able to secure a new host, I'm not sure what would have happened. We rely so heavily on our website to distribute information not only to our members but also to the general public. Many of our new members these days come to us by way of the internet. Jim has done a fantastic job in presenting a very professional looking web site, and very often I receive emails complimenting Skyscrapers on its online appearance and content.

More Field Trips in 2005

On March 12, 2005, an intrepid group of Skyscrapers left Seagrave Observatory during a blizzard for yet another excursion to Van Vleck Observatory on the Wesleyan University campus in Middletown. Fortunately the white-out conditions ended at the Rhode Island and Connecticut border, and the skies were clear when the group arrived at Van Vleck. There our members were treated to great views of Jupiter and Saturn. A caption to one the images on the Skyscrapers web site says, "The red spot and other festoons were readily apparent and the Galilean moons were easily resolved into small discs by everyone."

A week later, from March 18-20, a group of Skyscrapers once again visited the Hartness House Inn in Springfield. This time the trip included

Skyscrapers in front of Robert Todd Lincoln's observatory. Photo by Dan Lorraine.

a visit to Hildene, the summer home of Robert Todd Lincoln, son of President Abraham Lincoln. Robert Todd built this mansion on a hilltop in Manchester, Vermont in 1902. In 1908 he erected an observatory a short distance from the house and installed a telescope. That instrument soon proved inadequate, so in 1909 Mr. Lincoln contracted with the well known Warner and Swasey Company to fabricate a 6-inch f/12 refracting telescope on a German equatorial mount, with the lens being crafted by the equally well known company of John Brashear. The instrument was installed during the summer of 1909.

On this visit Skyscrapers were able to observe with the 10-inch Brashear at the Inn. Bob Horton recalls observing the Orion Nebula, the Moon and Jupiter. Bob also had time to instruct the owner on how to find celestial objects using the telescopes setting circles. What a great ambassador for the Skyscrapers organization.

2005 Trip to Flagstaff, Arizona

In 2005, from April 30 through May 6, Rick Lynch and Dan Lorraine arranged for a major expedition to northern Arizona for Skyscrapers members. Dan had arranged for the group to purchase two nights of observing time on the famous 24-inch Alvan Clark refractor at Lowell Observatory in Flagstaff. This city was chosen as the base of operations from which day trips would be organized to various archaeological sites in the area, as well as to visit the observatory of the University of Northern Arizona and the US Naval Observatory located nearby. *Read more on page 93…*

Skyscrapers Visit Maria Mitchell and Van Vleck Observatories

Dan Lorraine led a one-day field trip to the island of Nantucket to visit Maria Mitchell Observatory on June 25, 2005. Skyscrapers were greeted and guided by members of the Maria Mitchell Association. Student volunteers gave the group tours of Maria Mitchell's home, observatory (which houses a 5-inch refractor) and burial site. Maria Mitchell, born on the island in 1818, soon became a well-known astronomer, having discovered a telescopic comet on October 1, 1847, within five degrees of Polaris. She also became the first woman Professor of Astronomy at Vassar College in September 1865 where she encouraged her young female students to continue their education. Maria is said to have stated, "I do not expect to make mathematicians or astronomers of you. But I want you to open your eyes to the universe about you."

Adult members of the Maria Mitchell Association also provided Skyscrapers members with a tour of Loines Observatory, which is home to an 8-inch Clark refractor, on the outskirts of town.

Skyscrapers had so much success during previous visits to Van Vleck Observatory at Wesleyan University that we planned yet another excursion to that wonderful facility on April 15, 2006. Well, this night proved to be one of excellent seeing. It was one of those nights that we here in New England experience only once in many years. Here is an excerpt from my thank you email to Josh Cohen of the Astronomical Society of Greater Hartford (ASGH), who was our host for this visit:

"In all my years of observing I have never seen so much detail in the

Saturnian system. Obvious was the Crepe ring, and even those dusky markings which appeared to be the so-called "spokes." But even the disk of the planet itself revealed subtle detail in the cloud tops. The whole experience was absolutely fantastic."

2006 Trip to New Mexico

Well, the "near future" proved to be very near! Just one year later in 2006, from April 22-29, Rick and Dan led another trip to the Southwest. This time they would visit the astronomical and archeological sites of New Mexico. After you read Rick's account, which was also written especially for this 75th anniversary book, you'll want to pack your bags in time for the next scheduled excursion out west. *Read more on page 101…*

Traditions Continue

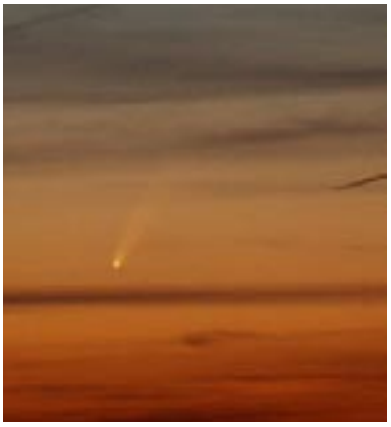
There have been so many activities in which the Skyscrapers organization has participated, it's difficult to recap or even remember all of them. Skyscrapers members have been regular attendees at the annual Stellafane convention in Springfield, Vermont. In fact, Ed Turco, and a Steve Hubbard and Steve Siok collaboration, have won awards for their entries in the telescope making competition. And Gerry Dyck, a long time variable star observer with the AAVSO (American Association of Variable Star Observers), attained a huge milestone in September 2005 when he logged his 150,000th variable star observation. And I would be remiss if I didn't note the fact that Gerry still makes his observations the old fashioned way. He locates the field visually and makes his estimate all manually. No computers, except his brain, are involved. Our society is very proud of Gerry's achievement.

Gerry Dyck (left) is presented an AAVSO certificate by Dave Hurdis in recognition of his 150,000th variable star observation. The award was presented during the December 2007 Holiday meeting of Skyscrapers. Photo by Jim Crawford.

Skyscrapers invite some of the best speakers to lecture for our members during our monthly meetings. And besides the week-long expeditions that we have hosted out to the Southwest, we also organize a variety of short day trips to local museums, planetaria, and observatories. And since the society resumed its annual AstroAssembly convention back in 1955, Skyscrapers has hosted this great New England tradition every year since. We are very proud of the traditions we have started and preserved all these 75 years.

We also continue to provide star parties, not only at Seagrave Observatory on every clear Saturday night, but also at schools and civic groups throughout Rhode Island. Have telescopes, will travel! Our members enjoy sharing their love of the sky, especially with children. Two of these annual events (one at Callahan School and the other at Steere Farm School), both in Burrillville, Rhode Island, each have 250 to 300 or so folks attend these outreach sessions. We have always felt that the Skyscrapers organization should "educate the general public… on matters pertaining to astronomy," in addition to enlightening our membership on the wonders of the universe.

If you'd like to experience first hand what Skyscrapers has to offer, we traditionally meet the first Friday of every month at Seagrave Observatory in North Scituate, Rhode Island. The dates can change, so please check our web site regularly for updates. During the winter months we hold our meetings away from Seagrave Observatory, usually



Comet McNaught, the brightest comet in 40 years, was visible in Rhode Island skies for only a brief few evenings in mid-January. Tracey Haley captured this image of the comet over the Scituate Reservoir on January 11.

at the North Scituate Community Center less than a mile from the observatory, the campus of Brown University, or occasionally elsewhere. And, continuing the fine tradition started by our founding members, our speakers are incomparable!

Members in good standing can earn access to any of the instruments at Seagrave Observatory, and we also have several loaner telescopes available. Members have judged science fairs, and Skyscrapers has awarded cash prizes and family memberships for noteworthy astronomy projects over the years. Meteor observing has always been a major activity of the Skyscrapers organization, as has been telescope making.

And don't forget, Seagrave Observatory is open to the public free of charge every clear Saturday night. Our web site provides open times as well as any closures due to inclement weather.

I am proud of the great Skyscrapers traditions that we have preserved over the last 75 years. I have no doubt that in 2032 when we celebrate our 100th anniversary our members will look back and marvel at what we've accomplished over the years. And I'm sure that during the next 25 years, the Skyscrapers membership will accomplish anything they set their minds to do. It only takes the vision of one individual and the support of many to attain any goal.

The Skyscrapers organization continues to be a productive and valued member of the community as we enlighten our Rhode Island neighbors about the wonder and beauty of the universe. I dedicate this book to all past and present Skyscrapers members, and I challenge future generations to continue our mission.

Keep your eyes to the skies!

Seagrave Observatory in 2005. Photo by Dan Lorraine.

Postscript

If anyone reading this summary has any information about any of the events I have related please contact me (email dhuestis@aol.com). Also, Skyscrapers would be very happy to receive any copies or scanned images of any of the events highlighted in this narrative. Or, if you have any reminiscences about our organization you would like recount, please send them along. I will try to get them published on our web site or in our newsletter. —Dave Huestis

Footnotes

[1] *A Quarter Century of Skyscraping*, a private Skyscrapers, Inc. printing (1957) summarizing the first 25 years of the Skyscrapers organization.

[2] Ibid

[3] Miss Cormack, a naturalist, teacher and writer, would eventually become director (1947-1972) of the Museum of Natural History in Roger Williams Park, Providence, Rhode Island. She was also the driving force in the construction of the planetarium at that museum that now bears her name. It was opened in 1953.

[4] Skyscrapers monthly meeting minutes, September 18, 1933.

[5] Skyscrapers monthly meeting minutes, September 16, 1936.

[6] Skyscrapers monthly meeting minutes, November 2, 1936.

[7] The reader may recognize the name Arthur Hoag. Arthur went on to become a professional astronomer, eventually becoming the fifth Director of Lowell Observatory in 1977, among many other notable achievements.

Brian Magaw (1958-1994) shows time capsule found in cornerstone of Crawford Observatory. Photo by Dave Huestis.

[8] While dismantling this building, which had become known as the "black hole," in May/June 1982, the late Brian Magaw and myself found that cornerstone with a time capsule embedded within it.

[9] You can go to our web site at http://www.theskyscrapers.org/ to view the entire combined speaker list as I have compiled it so far. We do have a few monthly meeting minutes missing at this time and I hope to fill in some years as we locate them.

[10] *A Quarter Century of Skyscraping*, a private Skyscrapers, Inc. printing (1957) summarizing the first 25 years of the Skyscrapers organization.

[11] When the author became a Skyscrapers member in 1975, only the remnants of one of these observing coffins remained. Perhaps cheap aluminum lawn chairs rendered them obsolete. Unfortunately we still had to deal with the cold!

[12] From a personal email to the author, April 9, 2007.

[13] From a personal email to the author, March 23, 2007.

[14] Details of the 16-inch Cassegrain were provided by Professor Bill Penhallow in an email to the author.

[15] "I feel that a word should be put in for those old timers who have long passed away and cannot speak for themselves. In many ways I felt in the middle – between the old guard and the new. I was president in the mid 1960s as the old timers were passing away. Some of the newcomers felt that I had acquired the 16-inch for a song and that the old timers wanted to cash in the assets. Perhaps some old timer actually said that but Frank Morrissey, Phil Newmarker, and Arthur Howarth would turn over in their graves before they would ever consider doing that after so many years of very hard work!" From a Bill Penhallow email to the author.

[16] A full story detailing this epic undertaking can be found on the Skyscrapers' web site.

[17] Today our newsletter editor Jim Hendrickson publishes an online monthly newsletter that Skyscrapers can be extremely proud of.

[18] In 1976 Penhallow spent a year at Brown as a Visiting Associate Professor of Physics. Dave Targan was a senior in the Physics department and in charge of the astronomy labs at the time. One day they got talking about instruments that Smiley had developed. Penhallow mentioned the Schwarzschild camera that was so nicely depicted in a photograph in the Ladd Observatory. Dave said to him, "Come on down to the storage room (of the Barus Holley Building) and I will show it to you". The design and construction of a mounting for this unique astrometric instrument became the focus of the sabbatical and years afterward. The excellent machine shop facilities of the Physics department at Brown and the University machine shop at URI were utilized to produce a horseshoe mounting like that of the 200-inch. From a Bill Penhallow email sent to the author.

[19] See *Amateur Telescope Making 1* for a 1930s image of this scope.

[20] See Member Profiles section of this book describing how Rick became interested in the Southwest

[21] Bob Napier deserves all the credit for facilitating this exemption. It had to go before the Rhode Island state legislature to become official, and so it did with the passage of Senate Bill 1230.

[22] Skyscrapers, Inc. submits this grant proposal to the Champlin Foundations for a total amount of $26,394. The proposal is in two parts. The first part concerns repairs to the main observatory building (a-f) and meeting hall (g) necessitated by increased usage for public observing. A quote in the amount of $10,599 has been received for the following repairs: (a) replace exterior deck and railing, (b) replace floor in dome, (c) replace ceiling in stairway between anteroom and observatory, (d) update electrical wiring, (e) replace or repair door in upper dome, (f) re-attach exterior observatory siding where needed, (g) replace antiquated propane heater in meeting hall. The second part of this proposal concerns the purchase of a Meade 16-inch computer-controlled telescope. This new instrument will help Skyscrapers to accommodate public observing sessions and groups in a timelier manner. It would also enable us to provide K-12 science students digital astronomical images, via the Internet, for which our historic Alvan Clark telescope (vintage 1878) in the main observatory was not designed to accomplish. Together these instruments will complement one another, giving the visitor a well-rounded view of the universe. The quote received for the 16-inch Meade LX200 telescope is $15,795.

[23] $3,000 was approved for the project. Much time and materials were donated, and the society sold the 20-inch mirror to help defray the cost.

[24] We were over budget by about $700, but this amount was approved by the members to complete the project.

[25] Except for the weight drive and governor which had been vandalized in late 1974.

[26] Springfield was the birthplace of amateur telescope making under the guidance of Russell W. Porter in 1920. Albert Ingalls began promoting telescope making in the prestigious pages of Scientific American beginning in 1923.

Skyscrapers Trip Reports

For the past seventy-five years, traveling has been a key part of Skyscrapers activities. Whether it has been day trips to local observatories or events sponsored by other astronomical societies, or far flung trips to exotic destinations around the world, members of Skyscrapers have always been eager to travel.

Eclipses have always been major attractions for travel destinations. In the early days, eclipse trips would have taken months to plan, weeks of travel via steamship, train, and what we would today call classic airliners, and a small fortune to actually execute; all for the often dashed hopes of a cloudless sky for a few precious minutes under totality.

In recent years, tours of the American Southwest have been the most well-attended trips in our history. A few hours on a 737 for a very reasonable cost have landed us at a variety of destinations throughout the Southwest and we are fortunate to have members who are knowledgeable with the people, places, culture, and history of the region to make these trips a multifaceted array of dark sky observing, observatory visits, and tours of national parks and historic sites.

Following are reports and photo collections from some of the trips highlighted in the main text.

Opposite: Radio telescope in Owens Valley, California. Photo by Dan Lorraine from the 2004 White Mountain trip.

July 20, 1963 Skyscrapers Eclipse Expedition to the Rich Farm, North Bucksport, Maine

Top to bottom, left to right, 1: Skyscrapers wait for the eclipse. **2:** Left to right: "Jack" Hoffman, Mary Hoffman, Connie Reed in back, Hatch Hathaway, Wesley Green. **3:** Left to right: "Jack" Hoffman, Mary Hoffman, Connie Reed in back, Hatch Hathaway, Wesley Green, unknown at telescope with projected solar image. **4:** Left to right: "Jack" Hoffman, Mary Hoffman, Connie Reed in back, Hatch Hathaway, Wesley Green. **5:** The eclipse party at Rich Farm. **6:** Mr. Waite and equipment. Photos from the Smiley collection at Ladd Observatory.

Clouds interfered, but at least they saw some of the partial phase. Projected solar image with Don Reed's telescope. Hoffman collection.

Charles Smiley's Eclipse Flight July 20, 1963

Left: Charles "Top Gun" Smiley with model of F-104D Starfighter. **Bottom left:** Charles "Top Gun" Smiley discusses his rendezvous with totality onboard the F-104D Starfighter with pilot Major William A. Cato. Photos from Smiley collection at Ladd Observatory. **Below:** Flight Award presented to Charles Smiley after his July 20, 1963 total solar eclipse observations in an F-104D. Photo by Dave Huestis of award in storage at Ladd Observatory.

Above: Dave Huestis prepared for the weather and the eclipse. **Above, right:** Five Skyscrapers members (left to right: Frank Dubeau, Steve Hubbard, Ed Turco, Dave Huestis, Brian Magaw), and two guests (Tom Morgan and Murray Marks) on February 26, 1979 total solar eclipse expedition to Gimli, Manitoba. Photos by Dave Huestis.

1979 Total Solar Eclipse in Gimli, Manitoba

Contributed by Dave Huestis

Solar eclipses were still an important aspect of Skyscrapers' field trips — not for any scientific study mind you. It was merely for the aesthetic beauty and awe that such an event can have on an individual. Five Skyscrapers members (Frank Dubeau, Steve Hubbard, Ed Turco, Dave Huestis, Brian Magaw) and two guests (Tom Morgan and Murray Marks) successfully observed the February 26, 1979 total solar eclipse in Gimli, Manitoba on the shores of Lake Manitoba with a group from the Royal Astronomical Society of Canada from Toronto. This trek was a fairly short and inexpensive one. Our group flew from Boston to Toronto on Saturday the 24th at 7:50am. Upon our arrival in Toronto we checked into the Airport Holiday Inn and then spent the rest of the day touring the city. We visited the McLaughlin Planetarium and the Canadian National Tower.

At 5:00am on Sunday morning we were rudely awakened by the hotel fire alarm. We quickly got dressed, grabbed some of our equipment and exited the building. We soon noticed that Brian was not with us. Next thing we know he's coming out the same door we had, except that he is dragging his packed up Celestron 8! No fire was gong to keep Brian from his appointment with totality! We soon learned that a pipe had broken due to the cold and the decrease in water pressure had set off the alarm.

The weather on Sunday the 25th was dreary. No rain or snow. Just a very low overcast. We spent all day in the hotel, checking and rechecking the telescopes and camera equipment. We were constantly monitoring the weather forecasts for Gimli. It didn't look too promising. The mood was somber to say the least.

The reason we choose the hotel near the airport was because it was close to our departure point for our flight out to the eclipse site. On Monday the 26th, the day of the eclipse, we had to awake around 1:45am to allow enough time to get to the airport. We hired a limousine to shuttle us and all our equipment to our chartered flight. A total of 106 eclipse chasers boarded two Convair 640 turbo-prop planes, and

we departed Toronto at 3:50am for our four-and one-half hour flight to Manitoba. On our way there we were treated to an aurora display quite far to the north. After a quick refueling stopover in Winnipeg, we then make the short one-half hour hop up to Gimli.

By the time we arrived at Gimli the sky had cleared. We ate (actually gulped down) breakfast on the plane. Then we all clambered out to look for a spot to call our own. It was very cold, about +12 degrees Fahrenheit out on the cement taxi-way where we set up our equipment. We counted ourselves lucky. There was no wind. And, two weeks before the temperature had been minus 50 degrees F without the wind-chill!

My set-up was simple, a 4¼-inch f/5 reflector with a Tuthill Solar Skreen, and a Konica 35mm SLR camera attached to the drawtube using an adapter with a 25mm eyepiece.

First contact was at 9:38am CST (Central Standard Time). This was my first total solar eclipse, and I diligently snapped off one shot after another to chronicle the partial phase before totality. Next thing you know it's a few seconds before totality. Everyone was yelling "Go! Go! Go!" Off came my filter and the diamond ring appeared. A couple of quick shots. Then the pearly white glow of the corona shown with a ghostly light. Click, click, click! The time was 10:37am CST. A few solar prominences were visible extending beyond the dark silhouette of the Moon. Click, click! Ed Turco, a solar eclipse veteran, had warned us ahead of time to take a few moments to look around. I looked up at the eclipsed Sun without optical aid. It was spectacular. All around us on the horizon were seen the sunset colors of red and pink.

The temperature had dropped very rapidly. Before totality it had been +15 degrees Fahrenheit. It dropped to 0! My fingers felt it, as I hadn't worn gloves so I could more easily manipulate the camera. Despite this minor inconvenience I continued to take pictures. The experience was so overwhelming I had tears in my eyes. And that's not good at 0 degrees!

Next thing I knew someone yelled, "15 seconds to third contact!" What? Already? Unfortunately so. Totality was almost over. It was the quickest two minutes and 47 seconds of my life. A few more pictures. The time was approximately 10:50am CST. Then the diamond ring appears again. Another shot or two. Then it was time to put the filter back on. I tried to take another shot, but the film advance on my camera froze. I did manage to get inside a building to thaw it out, but once back outside I only took a few more pictures of the outgoing partial phase. It was so anti-climatic!

Once totality had finished, the organizer of the trip, Mike Watson, opened a bottle of champagne which we all shared. Some folks continued to photograph the outgoing partial phases, while many of us took refuge inside the plane. Immediately after the last vestiges of the eclipse had ended (around 12:03pm CST), our two planes headed back to Toronto. Later that day we left for the flight back to Boston. To our surprise the aurora was still in progress. However, when we touched down in Boston, a minor snow/ice storm was in progress. No aurora was seen, and the ride home was somewhat treacherous. What a day it had been! I'll never forget the day I experienced my first total solar eclipse. I was bitten by the eclipse bug. When and where was the next one?

Totality in Gimli, Manitoba, Canada showing inner corona (top) and outer corona (bottom). Photos by Dave Huestis.

Above, top: Ngorongoro crater as seen from the rim. The pink color is thousands of flamingos. Photos by Dave Huestis. **Bottom**: Critically endangered mother Black Rhino and baby in Ngorongoro Crater. **Right**: Walt Smith (right) ascending Mount Kilimanjaro. Photo by Lon Caracappa.

1980 Total Solar Eclipse in Tanzania

Contributed by Dave Huestis

Soon after our Skyscrapers group returned from Manitoba, several of us gave a presentation at Brown University's Ladd Observatory recapping our experience with totality on that eclipse expedition. Plans were underway by the Amateur Telescope Makers of Boston to view the 1980 total solar eclipse from the East African nation of Tanzania. This expedition would entail a two week eclipse/safari centered on the day of the eclipse, Saturday, February 16. I had already begun to think about joining the trip to Tanzania.

In the audience that night was Walter Smith. Walt was working on his doctorate at Brown. Walt also showed some keen interest in the eclipse/safari trek, so he and I attended several of the planning meetings up in Boston. It didn't take us too long to sign up for this grand adventure.

Our journey began with an evening flight from Boston's Logan Airport to Heathrow in England. We arrived early in the morning and spent the day touring the city of London. Latter that evening we began the 12-hour flight to Tanzania's Kilimanjaro International Airport. We were shuttled to the Mount Meru Hotel in Arusha using two pink Bedford trucks with bench seating in the back. They looked like army trucks, which is why they were painted pink. We were able to spend the day on our own in this small town.

We did manage to do some observing that evening from a large deck on the roof of the hotel. It took us a little while to get use to the orientation, for we were a couple of degrees south of the equator! We did see the Large Magellanic Cloud and its HII regions quite nicely.

During the next few days we visited many nature reserves, including Lake Manyara National Park where the lions sleep in trees and Ngorongoro Conservation Area with its Ngorongoro Crater, a collapsed volcanic caldera 12 miles in diameter. From the rim of the crater to the floor is about 2,000 feet. We spent half a day inside the crater looking

at all the wildlife one would expect to see in Africa—lions, cheetahs, warthogs, elephants, zebras, wildebeests, hyenas and a mother black rhino and her baby, just to name a few. We tried to bribe our driver to bring us a little closer to the rhinos for some better pictures, but he refused to do so. Seems she had rammed his land rover in the past, and he wasn't going to temp fate again!

We could have stayed in nearby hotels the entire time of our expedition, but to keep the costs down we camped! Yes, we camped. We even set up our own tents! The only light around the campground was a small one that was left on by one of the trucks. So at night it was prudent to carry a flashlight with you if you had to use the "facilities." At least you'd see what was attacking you! Our meals were procured and prepared by the great folks who were in charge of the tour, Trans-African Expeditions, who regularly provided these excursions to East Africa. The staff included two drivers, Rick and Neil, and three cooks.

The first week went by really fast. Each day a small group of folks would go out in one of the trucks on an early morning game run. Soon it was eclipse day, February 16, 1980. The eclipse site within Tarangire National Park had been chosen before we had even left Boston, and during the first week, we scouted it out to make sure we were situated within the path of totality, about 90 miles wide at the park. We set up our equipment on a small plateau which afforded us a great view of the surrounding area. All we had to do was to wait for the eclipse to begin. I used the same equipment I had brought to the previous year's eclipse in Gimli.

One fact I must point out. Usually one has to worry only about whether the equipment will perform correctly or not. Well, remember, we were in a game reserve. To ensure our safety we had three armed park rangers standing guard over our group, just in case some wildlife decided to check us out during the diminishing lighting conditions as totality approached. (Like the Gimli eclipse a year earlier, totality here in the park was at mid-morning.)

Above, left: Tarangire National Park Entrance. **Above, top to bottom, 1:** Campsite at lodge on rim of Ngorongoro crater. Photo by Dave Huestis. **2:** Local children at one of our camp sites in Tanzania. Photo by Dave Huestis. **3:** Standing guard over our eclipse site. Photo by Lon Caracappa. **4:** Walter Smith and Dave Huestis at eclipse site in Tarangire National Park. Photo by Dave Huestis.

Above, top: February 16, 1980 total eclipse, diamond ring. **Bottom:** Outer corona. Photos by Dave Huestis.

Right on schedule first contact began at 9:48am local time. Everyone was busy looking through their telescopes and camera lenses. Before you knew it, totality was rapidly approaching. And one cloud slid over the Sun. It hid the Sun from time to time. People were beginning to panic a little bit. But it was too late to try to find another location. Second contact was near. The surrounding area took on a strange and eerie hue. The temperature dropped. And just before the diamond ring appeared, the cloud disappeared. It seems the cloud evaporated with the cooling air temperature. I quickly pulled off my solar filter. Diamond ring! All you could hear, besides the ooohs and aaahs, was the sound of a few dozen eclipse chasers snapping off image after image with their cameras. To the local wildlife it must have sounded like some new kind of insect had invaded their territory.

Second contact was at 11:15:08am—totality began. The corona and prominences were beautiful. Pictures were being taken at a fast rate. Suddenly someone yelled out "mid-eclipse!" It was half over already? I remembered to take some time to look around at the surrounding area, and not just view the eclipse through the camera and telescope. It seemed like seconds later the warning went out that third contact was imminent. I took a few more shots to capture the diamond ring once again then attached the solar filter to the end of the telescope tube. Third contact occurred at 11:18:57am—totality was over. I may have snapped a couple of more images, but after you've experienced the awe and beauty of totality the partial phase is definitely anti-climatic. We experienced about three minutes and 49 seconds of totality. We all congratulated one another and waited out the end of the eclipse, fourth contact, which was at 12:53:18pm.

That night we went to the Tanzanite Hotel in Arusha for a banquet feast. This was a welcome respite from the camping. We spent the night in comfy beds. We even had showers! And to top it off, the hotel had a great outdoor pool.

Group that climbed Mount Kilimanjaro - Walt Smith (back row, left). Photos by Dave Huestis.

The next morning our entourage separated into two groups. Ten folks, including Walt, had opted to climb 19, 340-foot Mount Kilimanjaro. The larger group was going to journey over to Olduvai Gorge and the Serengeti Plain. I arose early to accompany Walt up to the Kili base headquarters. (Originally I had opted to climb Kili as well, but if I was going to Tanzania in February, I decided I was not going to climb a mountain with a permanent glacier!) There they began their trek up the mountain. I rode back to our hotel with our driver Rick. Soon thereafter we returned to pick up the rest of the group to begin the next part of our journey.

Our destination that day was Olduvai Gorge, a 30-mile long gorge that is part of the Great Rift Valley, where in 1959 Dr. Louis and Mary Leakey discovered the skull of Zinjanthropus boisei (Australopithecus), the oldest hominid found to date. This place was so off the beaten path that you couldn't even find the beaten path! It's so amazing the Leakeys found anything at all. However, they did some laborious research before they began their digging. It was while I was standing a few feet away from the plaque commemorating Mary's find of the skull that it finally sunk into my mind that I was in someplace very special. I was visiting

perhaps the greatest anthropological site in the world — the cradle of mankind in East Africa! A place I had read so much about during my studies of human evolution. I was overwhelmed.

We spent several hours with park guides walking through various dig sites. We even visited the small museum which had been erected near the headquarters. After a long day we headed off to the Serengeti. Some of our group stayed at the Seronera Wildlife Lodge, while the rest of us camped at a nearby campground. The few folks who decided to book a room at the hotel graciously invited the rest of us to indulge in their shower facilities. Every morning we would head out for an early drive to observe game then return for breakfast. The remainder of the day we would go off in search of wildlife.

While we were in the area, we did see herds of wildebeest and zebras migrating through the area…thousands and thousands of animals stretching out for miles before us on the Serengeti. What a beautiful sight! Each evening we would return to the campground for supper. We were usually so dead tired that many of us fell asleep soon after dinner. However, on a couple of nights we did take some time to observe from one of the darkest skies I had ever seen. No lights around for miles. It is a little unnerving to be observing and then hear a lion roaring in the distance. I hoped he had already had his dinner, for our leaders Rick and Neil were unarmed!

I do recall observing the Southern Cross and the Large Magellanic Cloud. The HII regions in this nearby galaxy were incredible through a 3½-inch Questar one of the eclipse chasers had brought. It wasn't bad through my 4¼-inch f/5 reflector either!

Soon it was time to head back to pick up the Kili climbers. Once again I accompanied our driver Rick to the Kili base camp. We soon learned that of the ten folks who attempted to summit Mount Kilimanjaro, only four made it to the top. Unfortunately Walt was not one of them. Altitude sickness knocked him out at around 14,500 feet. To this day he vows to return to try again.

Our fantastic journey was now almost over. We returned to the Tanzanite Hotel for the night, and the next morning we were transported to Kilimanjaro International Airport for a short flight to Dar es Salaam on the coast. There we boarded our plane for the return trip to London and then home to Boston. What an adventure!

Top: Olduvai Gorge, one of the cradles of mankind. **Bottom:** A stone marker indicates the discovery of ancient human ancestor at Olduvai Gorge. Photos by Dave Huestis.

The Kona Coast of Hawaii - a great place for a total solar eclipse - or so we thought. Photo by Dave Huestis.

The Great Hawaii Eclipse Chase of 1991

Contributed by Scott Tracy

The total solar eclipse of July 11, 1991, was to prove a challenge to Skyscrapers eclipse goers. The following recap was provided by Scott Tracy specifically for our 75th anniversary celebration, and the author has provided additional comments as well.

Skyscrapers involvement with the July 11, 1991, total solar eclipse really had its roots at the annual Stellafane convention in 1990. Mario Motta of the Amateur Telescope Makers of Boston presented a talk outlining plans to bring a large group via charter jet to Cabo San Lucas at the southern tip of Baja Mexico to view the "eclipse of the century." This eclipse was to provide over seven minutes of totality at this location. A travel agency had gone ahead and set up preliminary arrangements, including air fare and a nice hotel. The cost per person was to be $860.00 for a one week stay at this destination. The trip sounded too good to be true… it was.

This early evolution of interest and intrigue is actually a separate story in itself. Many of us sent in a deposit, while some sent in the payment in full. In short, when the local Mexican merchants learned of the huge influx of eclipse chasers from around the world who were ready to pay anything and were ready to descend en masse to their location, the rug was pulled out from under the travel agency, deposits were lost, money not returned, and the agency went bankrupt.

Enter Brian Magaw. Brian had the wisdom, insight, and energy to pursue an alternative plan to see the eclipse in paradise in Hawaii. Brian learned that the path of totality would cross the Big Island and present four minutes and eight seconds of totality. Brian's two biggest challenges were (1) getting enough people together to form a customer base which would yield "group benefits" and (2) finding lodging in Hawaii so late in the planning stage—everything on the Big Island was already booked since the previous July with an anticipated 100,000 people arriving for

the eclipse. My favorite part of his decision making was his selection of his number two man to make this happen—me.

At the time I was President of the Astronomical Society of Greater Hartford, and the two organizations had worked together in the past. Several of us were co-members. Brian saw this relationship as a means to bring together enough people to make a trip possible.

Brian met with a travel agent, got some figures together, and the two of us set out to spread the word. The plan was for us to fly out of Hartford (Bradley International) non stop to Honolulu July 9th and return July 16th. We would stay at a bargain hotel, have rental cars on Oahu, and fly to the Big Island July 10th, have rental cars waiting for us there as well, and return to Honolulu on the 11th after the eclipse. The planning and logistics for this were enormous.

So, where would we set up for the eclipse once we finally arrived there? The travel agency decided to send Brian and me to Hawaii in January to do a site survey. This meant flying to Hawaii January 8 through 11—Christmas vacation week was already booked (of course!). Our 14 hour flight put us in a bargain basement (or bargain lanai) hotel where we caught a few hours sleep, got up early and spent two days going up and down the Kona coast and up through the "saddle" between the two 13,000+ foot high volcanoes of Mauna Loa and Mauna Kea, checking for horizons, predominant weather patterns, roadside setup concerns, etc. Brian arranged for us to have a luau at one of the hotels.

The site we selected was a mule trail just off of the main highway about 15 miles north of Kailua Kona on a desolate, desert stretch where it rains on average once a year. The total lack of vegetation was testimony to this condition—the perfect site!

Probably each participant has his own story to tell about packing telescopes and all manner of equipment to bring along to this special event. For most of us this was the first ever trip to such a remote location—paradise! What a site we were at the airports—wearing the special bright yellow T-shirts we had made up with an eclipse logo for the event.

Arriving in Honolulu we received the traditional lei greeting. We checked into our hotel and were soon off to enjoy sunset on Waikiki Beach.

This action in itself was a great feat. Remember, it was around 8:00pm local time, which meant back home it was 2:00am. We were exhausted, but we felt compelled to experience the beauty of Oahu. Also keep in mind we had to rise early the next morning for our trek over to Hawaii! – Dave Huestis

Eclipse day minus one—we fly from Honolulu to Kona Airport on the Big Island. Rental cars are picked up (with some real screw-ups) and off we go.

Some of the group spent the day visiting the many shops in the Kailua-Kona area. Not only did the merchants carry the regular assortment of beautiful items for sale, they also had stocked up on all sorts of eclipse memorabilia. Meanwhile, another group decided to drive over to Volcano National Park. There they walked over some recent lava flows (burning some sneaker rubber in the process) to watch lava pour into the ocean amidst clouds of steam. I understand it was a beautiful sight. – Dave Huestis

Early in the evening everyone came together for our luau after another beautiful sunset.

Late that evening, we set off for "the desert." It's cloudy, but then again, Kona is in the "rainy zone." We arrived late at night, and positioned our cars along the mule trail up a hill running perpendicular to the highway along the coast. Some of us sleep in our cars, some on the ground on air mattresses. It begins to drizzle, then rain. Is history being made?

Tina and I had decided not to be "parked in" on the mule train. Instead, just a few feet down the road from our group we pulled off to the side of Queen Kaahumanu Highway. There we slept, or at least tried to sleep. We were in a Geo Metro. Now I know how a fish feels in a fish bowl. Thank goodness I wasn't claustrophobic! I think we got an hour or two of sleep, but then beginning very early in the morning, hours before the sun was to rise, a multitude of busses began driving by us every few minutes, bringing in more eclipse chasers. Every time a bus would pass our "bedroom," the Geo Metro would be buffeted back and forth. So much for getting some sleep.

We did manage to get a little shut-eye once again, but while it was still dark outside I awoke realizing I was getting wet for some reason. I had left my window partly open for fresh air, but now it was drizzling. No, I must be dreaming I thought. It can't be raining here. It hasn't rained at this site on this date in recorded history! This scenario was not looking too promising. – Dave Huestis

Humor break: a pizza delivery truck shows up—the entrepreneurs are smart—they knew people all up and down the coast would be "camping" and eager for pizza! More rain! Equipment set up has to be covered or taken down. Brian and I are worried, but our New England astronomy roots have us at least partially hardened emotionally.

One of only two shots captured of the eclipse - clouds closed in and totality was not observed. Photo by Dave Huestis.

The dawn breaks—many clouds—my weather radio was useless, as they would not give a forecast, probably figuring that a hundred thousand astronomers would panic and fight for some position elsewhere on the island. A break in the clouds reveals a crescent sun! But then the sky slams shut and remains so. We experience a darkening, and a drop in temperature (it was 7:28am at totality) and just as third contact is over, the sun reappears. Crowd response ranges from sighs to sobs. The sky clears, it is a beautiful day.

Tina and I were quite disappointed. We packed up the 4¼-inch f/5 reflector and movie camera and headed for breakfast back in Kailua-Kona. We were really depressed. We sat down at a table and waited to get served. We still had our Skyscrapers and ASGH eclipse shirts on, so naturally our waitress asked what we thought of the eclipse. We told her what had happened. She then proceeded to tell us that she and others had seen totality right from the restaurant. They didn't have any clouds at all! She sure didn't make us feel any better. I've missed many an astronomical event because of poor weather during the last 35 years as an amateur astronomer, but this truly hurt the most. – Dave Huestis

Scott continues, It was over. Or was it? I looked at my wife and said "this is probably the best place to be after an eclipse disaster" (disaster indeed!). We are in paradise… let's go have fun! Most of us came to that same realization. The remainder of the week back on Oahu had us visiting Pearl Harbor, Diamond Head, and eating Hawaiian blue ice on Waikiki Beach—evening parties (the catamaran cruise-dinner-dance

party was "way cool"). My wife and I returned to the Big Island for an additional four days where we hiked, took a helicopter ride over the erupting Pu'u' O'o Volcano, stood by the ocean at night and beheld the spectacle of bright orange lava pouring into the Pacific, snorkeling, eating lots of fresh pineapple, and making the long drive to the summit of Mauna Kea to the Keck Observatory. We had a private tour of the great telescope which was still under construction. John Stansfield had arranged this visit months before our trip.

The trip was a wonderful catastrophe! The long hours of checking participant lists, arranging rental cars, making a travel video for the group from our January survey, and meeting regularly with the travel agent is all but forgotten, except for the fact that Brian made it all possible. The Hawaiian experience was so fantastic, at least for me and my wife that I will always remember the event as the Great Eclipse of 1991!

Tina and I returned to Honolulu on the island of Oahu. We visited some botanical gardens looking for new bird species, climbed up Diamond Head, and body surfed the waves at Sandy and Makapuu beaches. And on two different days we visited the absolutely beautiful Hanauma Bay Nature Preserve. This coastal bay is a flooded crater with coral reefs and many species of tropical fish. The snorkeling was fantastic. In my opinion it is second only to the island of Bonaire in the Netherlands Antilles. – Dave Huestis

The small group of Skyscrapers members who did remain with the ATMOB trip to Baja had much better luck than we did. They experienced more than seven minutes of totality.

Right: Negative 9.0 magnitude Leonid meteor from Rick Lynch's property on the outskirts of Grants, New Mexico. **Inset:** Several minutes later the ionized trail was still visible. Photos by Bob Horton.

1998 Leonids in Grants, New Mexico

Contributed by Rick Lynch

The Leonid meteor storm was not far away, so Rick Lynch decided to organize a week-long (November 14-21, 1998) Skyscrapers' expedition to New Mexico. The Leonids would be watched from property Rick owned near the town of Grants, New Mexico. Rick was kind enough to chronicle this expedition especially for our 75th anniversary. His account follows:

This trip was the first attended by several members of Skyscrapers. The plan was to observe each night from my land high on the Continental Divide for a total of three nights centered on the predicted maximum for the shower. During the day I arranged for a behind-the-scenes tour of the VLA guided by Dave Findley the public information office at the facility.

It turned out to be a total coincidence that Dave was originally from Middletown, Rhode Island before coming out to the VLA. My first call to him was like two old friends talking to each other after a long time; he loved his job but missed the ocean and the "sea cockroaches!" I told him that if he could get us a good trip that "lobsters" would suddenly appear in his office in Soccorro! It was a deal!

Skyscrapers got that tour not too long after the release of Carl Sagan's movie "Contact," and we got to hear some of the wonderful stories associated with filming the movie. All were amazed by the place, as I always am when I visit. We headed back to Grants, which was to be our base of operation to get ready for the first night of observing.

Bob Horton, who was on the trip with many other Skyscrapers, had also arranged for physics students from Brown University under the leadership of Dr. Dave Targan to join us in New Mexico for observing. The trip at its height had close to 40 people ready to observe. After an early dinner together, we all convoyed to my remote location about 50

miles south and west of Grants. It was a late fall evening as we drove the remote highway (Route 53). Bob Horton was in the front seat with me and noticed that meteors were clearly visible through the windshield of the car. It was only 8:30pm!

When we finally arrived a short time later and got out of the vehicles, meteors were raining down and Leo was still close to the horizon. We quickly set up our equipment and began to observe. I quickly realized that I had just doubled the population of El Morro Ranches!

Needless to say the sky was filled with meteors. As we settled in for a long night of observing, the temperature fell quickly into the low teens, but no one gave up observing. Bob Horton, Al Hall, Bob Napier and I all set up camera equipment and recorded multiple meteors on each frame of film. We soon had to reposition our equipment as the Zodiacal Light had brightened the sky considerably in conjunction with the Milky Way. The gegenschein was also clearly visible, seen for the first time by most of those present. We estimated that the naked eye limiting magnitude that evening was about 7.1.

As the night progressed the meteor count increased to where we were seeing more than one a second. As twilight approached, Bob, Al and I did an hourly count based on 10-minute segments with each of us observing a different part of the sky. Al calculated an hourly rate from 4:00-6:00am of 650 meteors per hour! From about 5:30 to 6:15am fireballs were falling so rapidly that we gave up photographing and counting and just watched in amazement! Two of these fireballs were so bright we did not estimate the magnitude, but their terminal bursts actually cast shadows. Bob was convinced that he had caught a few earlier in the evening.

Upon his return home, Bob found that he had recorded a negative 9.0 magnitude fireball directly in the center of his frame. This image appeared on the front page of the *Providence Sunday Journal* along with a report of our expedition. It was a memorable night none of us would ever forget.

As the sun rose we headed back to Grants for some sleep, and then the group split in two, some traveling to visit Meteor Crater in Arizona while the others headed to Apache Peak and later on to Carlsbad Caverns. I was informed that a very close friend had passed the night before, during the maximum of the shower, and I had to cut my trip short and return for the funeral. My wife Kay and Bob Napier lead the rest of the group to Apache Peak Observatory and also to Roswell, New Mexico, home of the famous UFO incident of 1947 and then on to Carlsbad Caverns. Our first Skyscrapers Southwest expedition had come to an end and all returned home safely.

The First Trips to White Mountain, California

Contributed by Al Hall

In the meantime, two Skyscrapers members, Bob Horton and Frank Dubeau, decided to visit Al Hall in California and to observe from a dark sky site high at White Mountain in that state. Al Hall had joined Skyscrapers as a junior member back in August 1972. He eventually went off to college, returned to Skyscrapers around 1990. A few years later he obtained a job in California. You can read more about Al Hall's introduction to our organization in the special Member Profiles section of this book. Al wholeheartedly agreed to chronicle all the Skyscrapers adventures to California's White Mountain. First, the following story line sets the stage for those future trips.

Tammy and I spent five years living in California. Over that five-year period we moved several times, and lived in various parts of the state, from southern California, in Los Angeles, all the way up to San Francisco, and Modesto. Consequently, I learned a very great deal about those different areas.

In every area we lived, there were always very active amateur astronomical communities. I think the main reason for this is that most Californians live only a few hours drive from the pristine skies of the state's many deserts and wilderness areas.

During my time in the state I got to visit all of the great dark sky sites, from Mount Pinos in Los Angeles, Freemont Peak in Santa Cruz, Chews Ridge near Big Sur, to the Kelso Dunes in the Mojave Desert, and White Mountain in the Sierra Nevada Range. Every time I moved someplace new, I got to know the local amateurs and would ask them where the best dark sky sites were.

One time, shortly after Tammy and I arrived in California, when we were living in Corona, I got a call from Bob Horton. He indicated that he wanted to come out for a visit to photograph Comet Hale Bopp from the nearby desert. Bob's friend and mentor, Dr. Dave Targan from Brown University indicated to Bob that he had some friends in the state and they were going to head out into the desert to see the comet. One of these gentlemen was Jed Laderman. I got his phone number from Bob and gave him a call. To make a long story short, we arranged to meet out in the center of the Mojave Desert, near Kelso Dunes, to see Hale Bopp.

Bob Horton arrived, and we drove out into the desert and hooked up with Jed and a couple of his friends. They were toting a 41-inch Dobsonian! What a massive scope! Anyway, while we were there, we got some excellent views of the comet, not to mention the spectacular dark sky. The second night was not looking too good, as high clouds were threatening. Jed and his friends began to discuss options for better sites. This conversation was the first time I ever heard of White Mountain, which, according to these gentlemen, was described as the best site in California. It was nearly a nine hour drive from Kelso, and they were seriously considering making the drive.

A couple of years passed, and Bob Horton came out for another visit. This time he came out to attend the Riverside Telescope Makers Convention with me, at Big Bear Lake near Los Angeles. Skies at Big

Opposite: The Sierra Mountains make for spectacular scenery in the White Mountain area. Photo by Dan Lorraine from the 2004 White Mountain trip.

Bear are really good. Once again the subject came up about the best sites, and the consensus was once again White Mountain.

A few months later, I was having an e-mail conversation with famed astrophotographer, Chuck Vaughn. When I asked him where to go for the best skies, he said, "White Mountain hands down…it's worth the drive." Well, after all of these glowing endorsements, I decided that White Mountain was a must see. I contacted my Californian friend Dave McGough and we arranged to make the seven hour drive out from Modesto to the high Sierras east of Yosemite Valley.

We arrived to find that White Mountain has a 14,000-foot summit. There was a paved road that went 90 percent of the way to the summit. Additionally, there was a campground, Grand View Campground, at 9,000 feet. Dave and I decided not to go all the way to the summit but, we also did not want to stay in the campground, just in case someone was utilizing any bright lanterns. We found an excellent spot to set-up, on a dirt road, just off the main road, and just past the campground. This spot was where the town stored sand for the roads in the winter. It was perfect! The site was level and in a little valley that protected us from the wind.

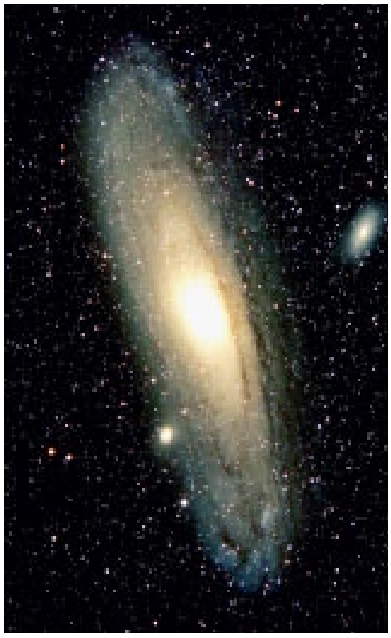
The air at 10,000 feet is noticeably thin. You have to move quite slowly or you'll get light headed. This altitude sickness can become quite a problem at altitudes above 10,000 feet. Additionally, at higher elevations, your retina begins to become oxygen depleted and you start to loose your sensitivity to faint objects in the sky. For all of these reasons we decided to stay below 10,000 feet.

On my first night at White Mountain the sky was absolutely crystal clear, not a cloud to be seen for a hundred miles in any direction. When Jupiter rose early in the morning, around 2:00am, it looked like a search light, beaming down from the sky. The zodiacal light was so bright that I thought the Moon was rising! Dave and I estimated the limiting magnitude at the zenith to be just about 7.0! This site had by far and away the best skies I had ever seen in my entire life. Stars on the horizon were just as bright as those at the zenith! When the Milky Way began to rise, I thought I was looking at clouds coming in from the east, only to realize that I was looking into the core of the galaxy, rising with Sagittarius.

The last thing I remember about that evening was falling asleep in the back of my pick-up, staring up at the Milky Way, setting over the far ridge. The sky was so black, that the stars looked like "diamonds on velvet," and the Milky Way glowed with that same yellowish, blue-green light, as you see the Orion Nebula appear to shine through the wide field eyepiece of a large telescope!

We both got many excellent photographs that first night, and we were hooked! White Mountain became the only place we would go to do astrophotography.

Because of the distance to get to White Mountain, nearly seven hours from my house in Modesto, almost a year went by before we decided to make another trip up. Dave, Tammy and I, along with a new friend, Steve Peters from Orion Telescopes decided to rent a camper and go for a couple of nights of astrophotography. We packed up late on a Friday night and started the long drive out to the High Sierras.



Left: Milky Way over the West Ridge. Photo by Bob Horton. **Above:** M31 from White Mountain; 6-inch Astro-Physics refractor; composite of two 1-hour exposures on gas-hypered 800 Super Fuji Film. Photo by Al Hall.

Dave drove from his home in Ventura, and we met him up at our spot at 9,000 feet, just past the Grandview Campground. It was about 6:00pm when Tammy, Steve and I arrived. Dave was already there and beginning to set-up. Again, the sky was crystal clear, and deep blue. In fact the sky was so blue, it's impossible to describe it, so I won't even try.

Well, I started unloading my equipment. I had brought along the 6-inch Astro-Physics refractor, and was anticipating an excellent night of photography. All of a sudden a very sickly feeling began to come over me. I had just realized that the counter weight shaft for the 800 mount was still in my closet, back in Modesto! Oh man! It was now about two hours from sunset. I had two choices…go home seven hours, or drive back down the mountain and try to find a piece of pipe that I could adapt to the mount head. The counter-weight shaft is a critical item, without it there would be no photography that night.

Tammy, Dave and Steve were just as disappointed as I was, but there was nothing I could do except try and get back into Bishop, about one and a half hours down the mountain to try and find that piece of pipe. I jumped in Dave's car and flew down the old mountain road. It was now almost 7:00pm and I was still an hour away from town!

When I reached the bottom of the mountain, there was a gas station there, so I decided to stop and ask directions to the nearest hardware

Above: Ready to go! **Right:** M45, the Pleiades from White Mountain, composite of two 1-hour exposures on gas-hypered Fuji 400 with Astro-Physics 6-inch refractor. Photos by Al Hall.

store. When I asked the attendant, "Could you tell me where the nearest hardware store is?" He replied, "Your standing in it." I asked, "Do you have any steel pipe?" "Yup" he said, "Do you have a piece one and a half inches in diameter?" I asked. "Got one piece," he said. I asked him, "Is it threaded?" He said "Yup, but only on one end." Sure enough, when he took me in the back there was a three-foot piece of steel pipe with a thread that exactly matched the thread on my mount head! Talk about lucky! I snagged it up and flew back up the mountain.

It was almost dark now, and Dave, Steve and Tammy thought I had given up. You should have seen the look on their faces when I took that hunk of pipe out of the car and went over to my scope and screwed it into the mount head! I really should have taken a picture! Now, I was good to go. Thirty minutes later I was polar aligned, and in fact that evening I got the best shot of the Pleiades that I had ever taken! If you look closely at the photo at left, you'll notice the long length of steel pipe hanging off my blue AP refractor!

2001 Trip to White Mountain, California

Another year went by and Bob Horton decided to come out for another visit. This time Frank Dubeau came out as well. This year was the first Skyscrapers expedition to White Mountain. It was in May, 2001. Once again I rented a camper. Bob and Frank flew out to Sacramento, and I drove up from Modesto to pick them up. Unfortunately I only had my small Mazda pick-up truck so it was a tight fit on the drive back to my house from the airport. The three of us were squeezed into the front seat!

We picked up the camper in town the next morning, got all of our gear loaded, and off we went. Once again we had arranged to meet up with Dave McGough and Steve Peters up on the Mountain. We planned to do mostly astrophotography, but Frank was keen on doing some visual work as well having never seen the dark skies at such an altitude.

Even though it was late May, the weather was still quite cold at 9,000 feet. The temperature got down around freezing at about 2:00am. The sight of the spectacularly dark skies made it all worth it though. Additionally, having the camper there made it much more comfortable. I remember doing an experiment with Frank early in the morning. With the Milky Way high overhead we placed our hands about six-inches above the ground and amazingly it was casting a shadow! Wow!

Skyscrapers at White Mountain, 2001. Frank Dubeau & Al Hall (left), Bob Horton (right). Photo by Al Hall.

White Mountain, California observing site, elevation 9,000 feet. Photo by Al Hall.

Skyscrapers at White Mountain. Left to right: Mark Teixiera (CA), Rick Arnold, Steve Hubbard, Dave McGough (CA), Al Hall, Bob Horton. Photo by Al Hall

2002 Trip to White Mountain, California

Contributed by Al Hall

In late winter of 2001, Tammy and I moved back to Connecticut. I wasn't home very long and Bob Horton and I were already planning a return trip to California. This time we decided to go a little later in the year, September I think it was, so we'd be assured to have some new objects to photograph. Also, this year Steve Hubbard and Richard Arnold decided that they too wanted to see what all the "fuss" was about White Mountain.

Once again we arranged to rent a camper in Sacramento, and make the long drive out from the central valley, through Yosemite National Park. Richard Arnold decided that he would take his van across the country and meet us up on the mountain. This arrangement proved to be quite a convenience as Richard was able to transport all of our equipment.

After Bob, Steve and I arrived in Sacramento, we headed out to pick up the camper. Now you must realize that we had just gotten off a seven hour flight from Providence, Rhode Island, and we were still looking at another seven hour drive out to White Mountain. Our route would take us up and over the Donner Pass, at 10,000 feet in through the High Sierras and Yosemite Park.

Off we went, towards Yosemite and White Mountain. Now the road to Yosemite from the central valley is a long and windy two lane road that switches back and forth as you climb up through the mountains. Of course, by now we had been traveling for over 12 hours and I was getting a little tired as we began to move up into the foothills of the Sierra's.

Bob Horton and Steve Hubbard are both avid photographers and they wanted to stop at almost every switchback in the road to

take pictures. The Sun was starting to set and the sunset was looking spectacular. We were all kind of getting a glimpse of it out the back windows of the camper, and both Bob and Steve kept pestering me to stop and get some photos. At this point I didn't want to hear anything about it. We still had five hours of traveling to do and I was the only one allowed to drive the camper.

My attention remained fixed on the road, especially considering that any miscalculation in the girth of the road and the width of the camper could send us careening off a thousand foot drop at every curve! I let Bob and Steve know there would be plenty of opportunities to get photos on the way back through the park.

Well you can just imagine how Bob and Steve were as we got to Yosemite Park. Every curve in the road produced a new spectacular vista. They were like two little kids. "Can we stop yet? Can we stop yet?" Of course I'm chuckling now because they were having a great time. It was just lucky for me that it was dark outside, or we would have never gotten through the park! Finally we made it through Yosemite and headed out over Donner Pass.

Once we arrived in Bishop I was totally exhausted. We'd been traveling for almost 14 hours straight! We were supposed to meet up with Dave McGough on the mountain that evening but it was now getting pretty late, almost 9:00pm so we decided to get a motel room in town and drive up the next morning.

I spotted what seemed to be a pretty nice place and pulled in with the camper, only to find out there was no way out of the parking lot! I had managed to pull straight in to a narrow single lane lot that was probably 300 yards long. That was it! I was done! I jumped out of the camper and told Bob and Steve, "I'm done. Can't drive another inch." I had no faith that I could back up the 25-foot camper all the way back to the road without smashing into something. Even Bob was a little hesitant, but finally he managed to back up the camper, and we found a place to park out on the street.

It turned out that staying at the motel in town ended up being a really good idea. It gave us a chance to get a good night's rest after 15 hours of traveling. We were able to take showers in the morning and head out for a nice breakfast.

On the drive out of Bishop, we headed south on Route 395 until we came to Big Pine, a small town at the base of White Mountain and the site of the gas station where I had procured that now famous piece of pipe.

This year, an old California friend of mine, Bob Jarret decided that he and his two friends, Mark Teixiera and "Wild Bill," would make the trip up from San Jose to meet us on the Mountain. The best thing is that Bob has a 22-inch f/6 reflector that he was going to bring along as well.

Just as we started heading up White Mountain Road, we spotted Rick Arnold's van parked somewhat off the road in a little pull out area. He made it! He had driven all the way from Rhode Island. We were all glad to see him, especially because he had all of our equipment with him.

Heading up the mountain. Photo by Al Hall.

Setting up in the morning. Photo by Al Hall.

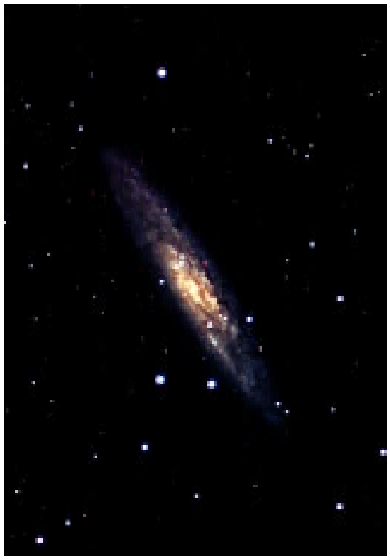
That evening we were once again treated to magnificent skies, although we did have a few high clouds to start the evening.

I managed to get a couple of excellent deep sky photographs, one of M13 and one of NGC 253.

The views through Bob Jarret's 22-inch telescope were amazing! We were all very impressed by the Veil Nebula, as it could be traced all the way around in a giant loop through the sky. There were knots and filaments that we had never seen before. Incredible!

The first evening "Wild Bill" cooked giant 3-inch thick steaks for us on a small grill. What an awesome meal to have at 9,000 feet! Additionally, the weather was much more comfortable than in previous years, being that it was later in the season. The temperature did not go much below 50 degrees.

After two nights up on the mountain, it was time to head back to Sacramento. This time we could take our time and enjoy the scenery as we drove. We stopped off in Yosemite National Park for a couple of hours to hike up a giant dome of granite. Bob Horton and Steve finally did manage to get some excellent photos of the mountains and scenery in Yosemite.



Left: M13 from White Mountain; 6-inch Astro-Physics refractor; single 1-hour exposure on gas-hypered Fuji 800. **Above**: The Sculptor Galaxy, NGC 253 from White Mountain; composite of two 1-hour exposures with 6-inch Astro-Physics refractor on gas-hypered Fuji 800. Photos by Al Hall.

2004 Trip to White Mountain, California

Contributed by Al Hall

Another year had come and gone before talk started about making a return trip to White Mountain. Bob Horton decided to do a little investigating about the area around White Mountain and proceeded to perform a "Google" search. Much to his surprise he found out that there was a University of California research center just ten miles further up White Mountain Road from where we had been setting up in the past.

Bob made some inquiries and found out that we could rent the facility for several evenings for $50.00 person/night. The only requirement was that we had to have a minimum of ten people. Well, this sounded great! All meals were included and there were showers and bunk rooms. Everything an amateur astronomer could want! Bob went ahead and booked the facility, and we began to let Skyscrapers members know that we were planning another trip out to California.

Left: Skyscrapers 2004 White Mountain expedition, left to right: John Kocur, Scott Tracy (ASGH), Jim Hendrickson, Steve Hubbard, Al Hall, Josh Cohen (ASGH), Glenn Jackson, Patrick Landers, Dan Lorraine, Richard Arnold, Fred Swain, Krys Rucz (ASGH), Ken Dore, Mike Futoma (ASGH), Jack Szelka, Dick Parker (ASGH) not present. **Opposite**: Crooked Creek Station at White Mountain. Photo by Jim Hendrickson.

Well the response was astounding. Twenty-one Skyscrapers members decided to make the trip that year. Additionally, the California boys, Bob Jarret and his friends Mark Teixiera and "Wild Bill" decided they would join us again. They even promised to bring along the 22-inch Dobsonian.

This year, instead of flying into Sacramento, we decided to fly to Las Vegas. It was actually about four hours closer to White Mountain, and we'd get the added advantage of traveling through Death Valley.

We all met up at Green Airport in Warwick, Rhode Island, and off we went. Unfortunately, Bob Horton, who had spent so much time organizing this expedition, had to remain home because his father had become gravely ill. We all missed him very much.

After arriving in Las Vegas, we gathered up all our materials and headed out in four big sport utility vehicles. Our plans were to drive the two hours plus out to Death Valley and spend the night there, and then proceed on in the morning the final three hours up to White Mountain.

The drive out through the desert in the afternoon was spectacular. We were treated to a rare desert thunderstorm just as we were headed out of Los Vegas. The rain was intense, but it only fell in a small area.

Above, top to bottom: The heart of Death Valley. Photo by John Kocur. John Kocur taking his great shot. Photo by Dick Parker. Dick Parker taking his great shot of John Kocur taking his great shot of the desert. Photo by Al Hall. **Above, right:** Skyscrapers arrive in Death Valley. Photo by Dan Lorraine. **Right:** The Cabins at Furnace Creek. Photo by Jim Hendrickson.

Lightning bolts were flying through the air everywhere. In five minutes we were through the storm, and you'd never know anything had happened at all.

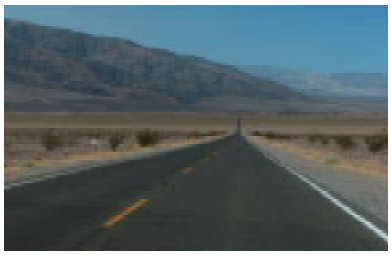
The desert was bone dry, the air was clear and the temperature was hot! I remember when we finally arrived in Death Valley the outside temperature was 119 degrees Fahrenheit! Any sweat instantly evaporated away from your skin.

We had arranged to stay at the aptly named "Furnace Creek Resort" in the center of Death Valley. The facility there had nice cabins, swimming pool, and even a golf course!

Unfortunately, at Furnace Creek there is no escaping the heat! It typically would reach over 120 degrees Fahrenheit during the daytime.

Dan Lorraine tells a little story about how he woke up in the middle of the night on our first night there. It was so hot in his room that he couldn't stay asleep. Apparently his air-conditioner had stopped working. Well, he thought he'd step outside for a minute or two to try and cool off. It was still 98 degrees at 3:00am! Desperate for relief he returned to the cabin, and into the small bathroom, hoping that a little cool water would do the trick. He turned on the faucet and went to splash some water on his face. It was hot water. With nothing left to do he lay awake, sweltering until the Sun came up. Then it really got hot! Well, I guess if you're going to visit the hottest place on Earth, it's best to go in the middle of the summer, so you can get the full effect!

We got up early the next morning, took a quick dip in the pool, had breakfast, and then headed through the desert out to White Mountain.



Above: On the road to Death Valley. Photo by Dick Parker. **Left:** Ubehebe Crater, a volcanic steam vent in Death Valley. Photo by Jim Hendrickson. **Below:** Owens Valley Radio Telescope Array. Photo by Dan Lorraine.

Along the way, Dick Parker and I, along with John Kocur (we were all riding in the same car) decided to stop and get some pictures.

We finished our picture taking quite quickly, as the temperature was already over 110 degrees. Then, we piled back into our vehicle to begin the last leg of our trip. We left Death Valley and continued our way out through the desert towards White Mountain. The drive was only three to four hours long as I recall.

When we finally headed out of the desert into Owens Valley we were greeted by an impressive sight: the Owens Valley Radio Telescope Observatory! Dan Lorraine decided he wanted to get some better pictures, so they turned up the dirt road that lead out to the dish complex, despite the fact that there were huge no trespassing signs everywhere! He did manage to get some excellent images.

Above, right: University of California White Mountain Research Station at Crooked Creek. Photo by Jim Hendrickson. **Above, top to bottom, 1:** Overlooking Crooked Creek Station from the eastern ridge. Photo by Jim Hendrickson. **2:** Bob Jarret, Wild Bill, & Mark Teixiera with their 22-inch scope. Photo by Al Hall. **3:** Moonset over the Western Ridge. Photo by Ken Dore.

We spent a few minutes fueling up at the same small gas station where a few years earlier I had purchased my "spare" counterweight shaft, and then we headed up the mountain.

Upon arriving at the White Mountain Research Station (WMRS), we met up with our friends Bob Jarret, Mark Teixiera, and "Wild Bill." And with them they had indeed brought along their 22-inch f/5.6 reflector!

The WMRS was awesome! It is a complex of about six buildings that the University of California operates throughout the year—even in the winter! The facilities were excellent, homey, and comfortable. There was a large meeting hall/cafeteria where all of our meals were prepared for us every day by one of the staff members. A couple of us, each of the three nights, would take turns doing the dishes after supper. It was really nice to be able to just walk inside at 2:00am and get a cup of nice hot coffee or hot chocolate!

The first evening we had a few clouds before sunset, and the sky had us a little concerned. However, we were treated to a nice view of the Moon setting over the western ridge. Ken Dore got an excellent image through one of the telescopes.

The 22-inch was quite naturally a huge amateur astronomer magnet! The deep sky seen through this telescope was again spectacular. The filamentary detail in the Veil Nebula was beyond belief. And believe it or not it was also very easy to see the Veil in a pair of 10x50mm binoculars. Most observers were also able to see the central star in the Ring Nebula winking in and out through this magnificent Dobsonian.

Naked eye, the Milky Way stretched from horizon to horizon and offered up more detail than I've ever seen before! Objects like the globular cluster M13 in Hercules, the spiral galaxy M33 in Triangulum, and the Lagoon Nebula M8 in Sagittarius were all naked eye objects under these very dark skies!

During the day there was time for some sightseeing. One side trip took us to the Ancient Bristlecone Pine Forest, which features the oldest living trees on Earth. Many of these trees are 4,000 years old and there is one, known as Methuselah that is over 5,000 years old!

Mono Lake was another interesting destination spot, famous for its Tufa formations. Tufa forms under Mono Lake's waters. When fresh water

springs bubble up through the carbonate-rich lake water, the calcium and carbonates react to form a calcium carbonate salt deposit, which is called a Tufa. This solid, limestone-like material continues to develop, eventually forming vertical towers with spring water percolating up through and around them. Since the lake has been receding for years now, many of these features are visible along the lakeshore creating a very beautiful but alien landscape.

After returning from visiting Mono Lake we were all treated to an excellent chicken dinner at the cafeteria. Many of us were a bit tired so we took the opportunity to get some rest. Sleeping at 10,000 feet can be a little difficult. Often you find yourself waking up a little short of breath. It really does take about two to three days to get used to moving around slowly.

Our last night on the mountain provided the best skies. In fact the seeing was better than any time I have ever visited White Mountain. I remember Dan Lorraine making a comment on the first night that he didn't think the skies were much better than Stellafane in Vermont. What he didn't realize was that there was a little haze and moisture in the upper atmosphere on the first night. By the third night the sky was so dark that Scott Tracy and I saw stars near the zenith around midnight that were magnitude +7.2, and even hard-to-impress Dan Lorraine had to admit that these were the darkest skies he had ever seen. The Milky Way was so impressive. There it is a huge galaxy spanning the entire sky, not just a fuzzy band of light through Cygnus.

All three evenings Jack Szelka and I were engaged in astro-photography. We had hauled a "tremendous amount of equipment" and were looking forward to some excellent results. By the time the third evening had rolled around we had gotten deep sky images of approximately seven objects, and almost 14 hours of exposure time.

On the last night, I went to advance the film and realized that I had reached the end of the roll. I re-wound the film and opened up the back of the camera. Jack and I both starred in horror as we noticed that the film had broken off the supply reel and was still wound up on the take up reel!

You cannot imagine our disappointment as I pulled the film off the reel! Three nights worth of work was ruined! After about 20 minutes of commiserating, we decided not to give up and reset our equipment to take one more shot. It was now almost 3:00am and we were both exhausted, but we managed to get two 45-minute frames of M31 before the sky began to brighten. We packed it up for the night and managed to get a few hours sleep before we all had to pack up and return to Death Valley.

On the way back to Death Valley we stopped in Pahrump, Nevada at a super market to get our film developed. Krys Rucz got his film back first. He had some excellent images of the Milky Way. Then John Kocur got his. Among the many great images was an excellent shot of the Milky Way. Josh Cohen showed off his pictures of the desert and had acquired an impressive photo of some "Big Horn" sheep in the mountains. Finally, Jack and I got our film back with the two frames on it. The Andromeda Galaxy (M31) looked great! It was worth the trip and the extra effort to

Top: Tufas at Mono Lake. Photo by Dan Lorraine. **Bottom:** Skyscrapers tour the Ancient Bristlecone Pine Forest. Some of these trees are nearly 4,000 years old. Photo by John Kocur.

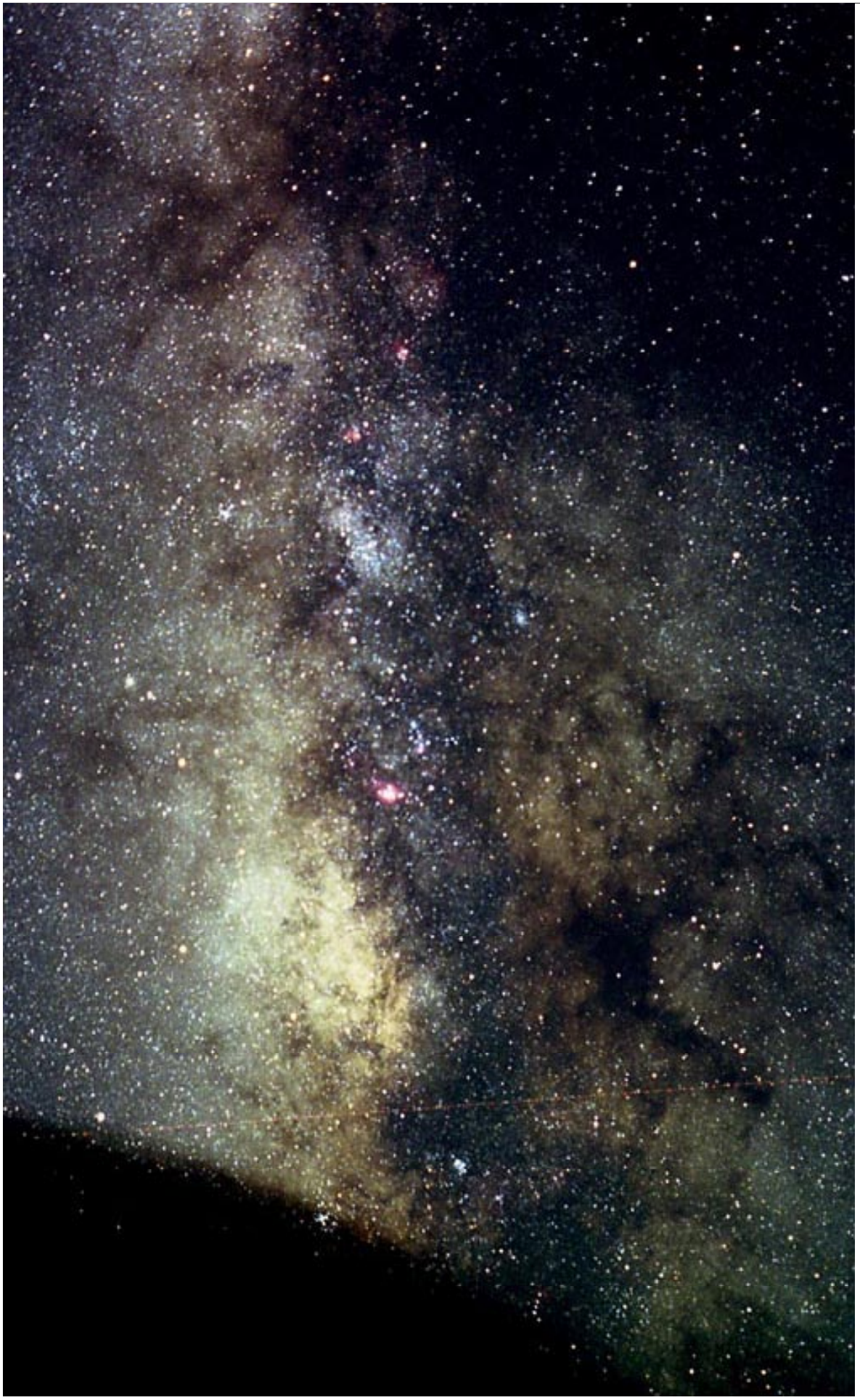
The Veil Nebula in Cygnus was easily visible in 10x50mm binoculars. The Milky Way, which engulfed the entire teapot of Sagittarius and extended all the way to Antares, was casting visible shadows behind us!

Above: Artist's Palette in Death Valley at sunset. Photo by Dan Lorraine. **Right:** Titus Canyon in Death Valley. Photo by Josh Cohen. **Opposite:** Milky Way at White Mountain. Photo by Dick Parker.

stay up until the wee hours to capture that fantastic image.

We spent our last day relaxing at the Furnace Creek Resort in Death Valley prior to returning to the airport in Las Vegas. The swimming pool sure felt good!

In summary, everyone said they had a great time and that this was probably one of the best expeditions Skyscrapers had ever been on. We all look forward to our next trip to White Mountain. Many thanks to Bob Horton for organizing such a wonderful trip!



Left: Skyscrapers observing with the 24-inch Alvan Clark telescope at Lowell Observatory. Photo by Dan Lorraine. **Opposite**: Grand Canyon. Photo by Jim Hendrickson.

2005 Trip to Flagstaff, Arizona

Contributed by Rick Lynch

In 2005, from April 30 through May 6, Rick Lynch and Dan Lorraine arranged for a major expedition to northern Arizona for Skyscrapers members. Dan had arranged for the group to purchase two nights of observing time on the famous 24-inch Alvan Clark refractor at Lowell Observatory in Flagstaff. This city was chosen as the base of operations from which day trips would be organized to various archaeological sites in the area, as well as to visit the observatory of the University of Northern Arizona and the US Naval Observatory located nearby. Please read Rick's recap of this expedition:

Upon our arrival in Phoenix we headed north and visited Montezuma's Castle, an ancient Sinagua ruin in the Verde Valley. On to Flagstaff where we settled in for the night. The next day we toured the entire Lowell Observatory complex and visited Walnut Canyon archaeological ruins later in the day. Our next day trip was a long ride to Meteor Crater and then on to the Petrified Forest. That evening we had our first observing run on the 24-inch Lowell refractor. What we saw and did that night was a story unto itself. Needless to say everyone totally enjoyed their time on the telescope.

The next morning we awoke early and headed out for a tour of the US Naval Observatory located nearby. This major astronomical site is a most impressive facility run by the US Navy. Many large instruments are present all over the mountain. Fred Harris, Staff Astronomer and CCD equipment expert, gave us a wonderful presentation about the facility and behind-the-scenes tour.

After this wonderful tour we headed south through the magnificent Oak Creek Canyon to our next destination—Sedona. For those of you who are unaware, Sedona may certainly qualify as one of the most

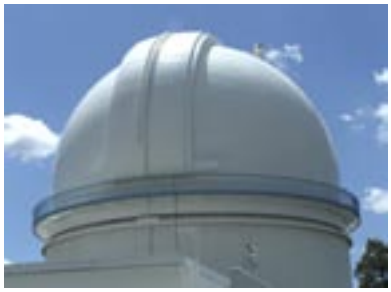
beautiful locations in all of the United States. Sedona is a small town set among magnificent red rock cliffs and mesas. This spot is a major art community today that also draws mystics, people from alternative religions and beliefs, and of course back-to-nature types. In the 1980s many people believed that Sedona would be the center of the "harmonic convergence," and people from all over the world gathered here. It is not difficult to see what the attraction is, as most all of us felt the power of the place!

We broke up into two groups, the first intending to stay in town to visit all the galleries and to do some sight seeing. The second group set off to hire a number of "jeep tours" that would take them out into this beautiful country. As the day came to an end, we all headed back to Flagstaff out through the bottom of the canyon, returning to home base on the interstate.

A few of us visited the Atmospheric Research Observatory at Northern Arizona University. Later that evening we returned to Lowell Observatory for our second night of observing, but unfortunately we were clouded out this evening for the most part. The trip had come to an end and Sunday morning we headed back to Phoenix for the flight home to Rhode Island. All 32 people on the trip enjoyed themselves greatly and committed to a return trip to the southwest in the near future.

Our visit to Lowell Observatory occurred during the 75th anniversary year of the discovery of the planet Pluto. As part of our tour, we visited the observatory (left, top) housing the Pluto telescope, a 13-inch reflector still holding the photographic plate holder (left, middle). Shortly thereafter, we were treated with a special presentation at the Lowell Observatory archives in the basement of the Rotunda (left, bottom). Photos by Jim Hendrickson. There we were shown the original photographic plate log book (above, left) used by Clyde Tombaugh to record each exposed plate taken at the 13-inch scope. The last entry on this page, dated January 29 was one of the two discovery plates. It took Tombaugh nine months of searching before he was successful. Photo by Jim Hendrickson. Above, right: one of the two original photographic plates used in the discovery of Pluto. All writing is that of Clyde Tombaugh on the original envelope that contained the plate, now taped to a new storage envelope. The other plate resides at the Smithsonian Institution. Skyscrapers were very fortunate to have this "behind the scenes tour" at the historic Lowell Observatory. Photo by John Kocur.

Left: Standing at the entrance to the Rotunda at Lowell Observatory is the complete Skyscrapers group that made the trek to Flagstaff, Arizona in 2005. Photo by Kevin Schindler (Lowell Staff member).



At the United States Naval Observatory Flagstaff Station, Rick Lynch (above) lies on the floor of the 1.55 meter Kaj Strand Astrometric Reflector, the largest at the observatory, to compose the best shot. Photo by Dan Lorraine. **Above, right**: The main entrance to the US Naval Observatory. Photo by Dan Lorraine. **Middle, right**: The balcony of the dome for the 1.55 meter telescope provided breathtaking views of the surrounding scenery. Photo by John Kocur. **Bottom, right**: Skyscrapers tour the 1.0 meter Ritchey-Chretien Reflector at the US Naval Observatory. Photo by Dan Lorraine.

Top: Meteor Crater was among the many attractions we visited during our trip. John Kocur composed this panoramic photo. **Above**: Skyscrapers visit the Petrified Forest National Park. Photo by Jim Hendrickson. Newspaper Rock in the Petrified Forest National Park. Photo by John Kocur. **Right**: Among many of the natural wonders of Northern Arizona is the Painted Desert. Photo by Jim Hendrickson.

Left: The first place we visited after landing in Phoenix and on the way to Flagstaff was Montezuma Castle, a 1,000 year old cliff dwelling. Photo by Jim Hendrickson. **Above:** Skyscrapers at Montezuma Castle. Photo by Jim Hendrickson. **Bottom:** Rick Lynch served as our tour guide during our visits to the cultural and historical sites, including the ruins at Wupatki. Photo by Jim Hendrickson.

Top: A trip to Northern Arizona is not complete without a visit to the Grand Canyon. Panorama composed by John Kocur. Above: Joe Sarandrea, Rick Lynch, Jim Hendrickson, and Dan Lorraine went on a jeep safari during the day trip to Sedona. **Right**: One of numerous red rock formations in and around the town of Sedona, Arizona. Photo by Jim Hendrickson.

Left: Rick Lynch and Jack Szelka survey a cliff at Wupatki National Monument. Photo by Jim Hendrickson. **Above**: Humphreys Peak (12,637 feet) is the highest peak in Arizona. The mountain in the San Francisco peaks north of Flagstaff is visible from many of the places visited on the trip, including Sunset Crater Volcano National Monument (below). Photos by John Kocur, Jim Hendrickson.

2006 Trip to New Mexico

Contributed by Rick Lynch

New Mexico, like Arizona, is blessed with very transparent skies. As a result, many major astronomical facilities are located here as well. New Mexico also has an abundance of history and culture to explore.

New Mexico is somewhat less developed than Arizona with the great majority of its population Native American and Hispanic. Because of its rural nature and areas of isolation, the US Government looked at New Mexico as a place to build many secret research facilities back in the 1930s and 40s. Los Alamos National Laboratory is where the atomic bomb was built in total secrecy. Sandia Labs was also another facility that developed major weapons and technologies such as the Star Wars defense shield.

White Sands was the location of the Trinity site where the first atomic bomb was detonated. White Sands is also where the US space program began with the relocation of Werner von Braun and his scientists from post World War II Germany. In the vicinity of White Sands is the town of Roswell which, incidentally, is where Robert Goddard the noted rocket scientist from Auburn, Massachusetts relocated to join in the space program. Roswell would be a stop on this trip for reasons other than those listed.

Left: Fajada Butte is the most distinctive landmark in Chaco Canyon. At the top are petroglyphs arranged in astronomical alignments known as the Sun Dagger, but it is off limits to the public. Photo by Dan Lorraine. **Opposite:** A 25-meter antenna in the maintenance yard at the Very Large Array. Part of our tour of New Mexico included a behind the scenes visit to this well-known observatory. Photo by Jim Hendrickson.

This trip would bring together 28 Skyscrapers and friends from other local societies. The first day of the trip was spent at Chaco Canyon in the west-central part of the state. Chaco was the culmination of the Anasazi culture as a religious center comprising many "great houses" with a prehistoric road system that connected other great houses throughout the southwest. All roads, many still visible, all meet at Chaco Canyon at the ruins of Pueblo Alto.

This cultural center is located in the high desert where water was always precious. Arriving mid-day with the temperature around 100°, we brought plenty to drink and proceeded to visit the ruins in the

canyon. The two major sites that everyone enjoyed were Cherto Ketl and Pueblo Bonito. Both ruins have significant astronomical significance with building foundations and corner windows aligned to the solstice and equinox sunrises. Cherto Ketl shows some major influence in its building design as a result of trade in prehistoric times with Mexico and parts of Central America.

Chaco Culture National Historical Park, Chaco Canyon, New Mexico. Above, top: Steve Hubbard, Mike DiToro, Glenn Jackson, and Louise Barbish explore the ruins near Pueblo Bonito. Photo by Tom Barbish. **Bottom:** Rows of interconnected rooms inside of Pueblo Bonito. Photo by Dan Lorraine. **Right:** Rick Lynch explains the construction and use of the kivas at Chaco Canyon. Photo by Dan Lorraine.

Pueblo Bonito built around 1000 AD was the largest residential/religious building in Western World until the construction of the low-income housing complex in the Bronx, New York in 1900. At its peak it was a D-shaped, five stories high structure at the rear with a south facing plaza that contained dozens of giant ceremonial kivas, as well as hundreds of living and storage rooms.

Across the Chaco Wash from these two sites are the ruins of Casa Rinconada, a giant semi-subterranean kiva with many different forms of astronomical alignments. The highlight, from an astronomical standpoint of this day, was only to be shared by a few participants. Below the giant ruins of Penasco Blanco along a canyon wall are located petroglyphs that depict the sighting of the 1054 Supernova that created the Crab Nebula. Reaching this remote site requires a back country permit and good physical shape.

The round trip hike through the desert, down canyons and up, used to be about four miles but is now closer to seven because of the relocation of the trail head at Casa Chaquita. The total mileage doesn't sound like a lot, but in 100° heat and walking through deep sand with the consistency of sugar, the trek was a major ordeal. We started with eight people, but were soon reduced to six after a few miles as the heat and stress took its toll. Those that did make it were rewarded with a wonderful view of the petroglyph with the crescent Moon, the supernova, and the hand print of the prehistoric observers.

Left, top: Hitting the trail, Dan Lorraine, Rick Lynch, and Steve Hubbard are among the few intrepid Skyscrapers making the 7 mile round trip hike out to Supernova Petroglyph. Photo by Jim Hendrickson. **Left**: Dan Lorraine photographs the petroglyph under a ledge, partway up the cliff face. Photo by Jim Hendrickson. **Above**: The petroglyph depicts the Crab Supernova (1054 AD) near the crescent Moon, along with a hand-print. Photo by Jim Hendrickson.

Most everyone had left for the long ride back to Albuquerque prior to our hike. We had now returned to the cars exhausted but exhilarated and also started our long drive out of the canyon and back to the hotel.

National Radio Astronomy Observatory Very Large Array. Above: "Jack of Diamonds", one of 2 transporters used to move each of the 27 25-meter antennas of the VLA throughout the array, which consists of 3 spurs each 21 kilometers long. Photo by Jim Hendrickson. **Right**: Steve Hubbard looks out at the array from the control station. Photo by Dan Lorraine.

Many of the people on this trip were new to our expeditions and those that had been on earlier trips had not visited the VLA, so that was our destination the next day. We made arrangements for a behind-the-scenes tour with Lewis Serna who is Head of Engineering for the VLA and the VLBA. We were treated to a truly informative tour that everyone thoroughly enjoyed despite the 40 mph winds that were blowing.

Despite the winds, the great majority of the antennas were in their full 26 mile extended observing configuration with all but two antennas in use. As I recall they were observing Quasar 3C-83. The next two nights our home base was located in Alamagordo so we could visit many of the sites in that area.

Apache Point Observatory. Right: The observatory housing the 2.5 meter Sloan Digital Sky Survey telescope. The entire observatory rolls off of the telescope. Photo by Jim Hendrickson.

The next day we drove to the top of Apache Peak to visit the observatory as well as the nearby National Solar Observatory located at Sunspot, New Mexico. Apache Peak is home to the Sloan Digital Sky survey where member John Briggs has been a Research Associate for several years. We visited the 3.5 meter and 2.5 meter telescopes as

well as many of the other instruments. It was then a short drive over to Sunspot, also located on the mountaintop, to visit the Sacramento Peak, National Solar Observatory.

Left: The Vacuum Tower (Dunn Solar Telescope) at the National Solar Observatory at Sacramento Peak in Sunspot, New Mexico. **Above:** Inside the vacuum tower of the Dunn Solar Telescope. Photos Tom Barbish.

There are so many different solar instruments here that it is impossible to describe them all. The most impressive was the Vacuum Tower Telescope with its 30-inch window and 52-inch heliostat, mounted atop a 136-foot tower that reflects the light down the tower 185-foot below ground before it returns to ground level to be analyzed with a variety of instruments. The giant Coronagraph located in the next big dome was also a highlight of the trip.

While walking the grounds and touring many of the smaller instruments we were told about the extreme drought that this part of New Mexico was experiencing. Everywhere one looked was evidence of brush clearing and trees being cut. Both observatories are extremely concerned about being destroyed by fire. A normal winter one would expect 250-300 inches of snow, but the last two years they have received a total of around 30 inches! High on a remote hillside nearby was an OSI/CIA listening post, clearly seen from the grounds of the observatory. Our guide told us that rumors abounded at the time when the Tower Telescope was built, that local people believed the flying saucer recovered from Roswell was stored at the bottom of the Tower shaft for safe keeping. He told us that the CIA listens to our thoughts about UFOs from the listening post, but he usually uses an aluminum foil in his baseball hat to block the radio waves! It was time to move on.

Right: Three Rivers Petroglyph Site. Photo by Dan Lorraine.

After our tour we returned to Alamagordo and visited the nearby Three Rivers Petroglyph site. This spot includes one of the finest collections of petroglyphs in the entire Southwest, which can be reached by another long hike along a trail that stretched across jet-black volcanic outcrops. It was hot, very hot, but everyone enjoyed the petroglyphs. At the end, a few of us continued on, off trail, to see some of the giant petroglyphs that I had seen in earlier visits. There are always a few in every group that will venture on beyond what most people can endure. Some Skyscrapers were no exception!

Our next day offered two choices, Carlsbad Caverns or the town of Roswell. The group was evenly divided and decided to separate, both heading out in the same general direction, east across the mountains, Roswell to the north and Carlsbad to the south.

I think this part of our trip is where many members for their first time got a good idea of what "wide open spaces" really means! We traveled at 80-90mph over good roads for hours without passing a single vehicle! Some people were not used to these great distances and found the travel tiring. I for one enjoyed driving every bit of it.

Above: Some members on the trip visited the Carlsbad Caverns, a massive cave complex in Southeastern New Mexico. Photo by Tom Barbish.

My group arrived in Roswell. Our goal was to visit the UFO museum. If you believe aliens have visited this planet, as many do, then the Roswell incident of July 1947 will be familiar. You might ask why aliens would want to travel across the galaxy and visit this remote place. Well if you considered looking in on the development of the human race back in the 1940s and 50s, New Mexico would be a good place to come.

Remember it is remote and you wouldn't be seen by masses of people. You would find that humans were preparing for space travel with their development of rockets at White Sands. Man's harnessing of atomic power was performed at Los Alamos and the first nuclear detonation took place close by at White Sands. Roswell Army Airbase was also the departure location of the Enola Gay aircraft whose mission

was to deploy the atomic bombs on Japan.

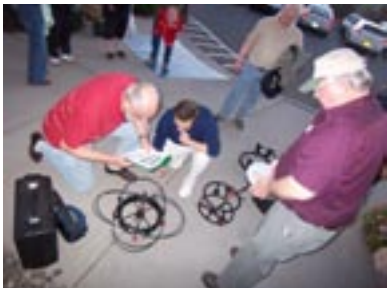
Well, according to reports and many books on the subject, two alien aircraft were viewing these goings–on in the area on July 3, 1947, when one of them was possibly struck by lightning and crashed into the other. One fell not too far from Roswell in the desert while the other limped on and finally crashed on the Plains of St. Augustine, ironically on the grounds of what is now the VLA! The museum in Roswell tells the story with serious presentations and also some tourist oriented displays. Nevertheless, it is a must see for anyone interested in the UFO subject. It was now time to head back to Albuquerque and meet up with our other group for dinner.

Left: Rick Lynch led us to a petroglyph site "off the beaten path" in La Cienga. Several members made the steep climb to see countless petroglyphs near the top of the mesa. Photo by Tom Barbish. **Above, top:** We visited Acoma Pueblo (Sky City), one of the oldest continuously inhabited sites in North America. **Bottom:** Exiting Acoma Pueblo via the centuries-old staircase down the side of the mesa. Photo by Dan Lorraine.

The final days of this trip took us to shopping and sightseeing in Santa Fe and Old Town Albuquerque. Some of the group attended church in Old Town at St. Felipe Neri, an old mission church. We also did another petroglyph trip to La Cienga on our visit to Santa Fe. La Cienga was another great site, but it required a very steep climb up volcanic mesas to see an abundance of dancing Kokopellis.

We visited Bandelier Cliff ruins and the ancient inhabited pueblo of Acoma. This stopover was a truly moving experience for many as the mesa top village has been continuously inhabited since time immemorial. Prehistoric adobe structures were still being lived in. The mesa village has no electricity, and water must be brought in or captured from rainwater. We visited the massive Spanish church built by enslaved Acomans in the 1600s. Many of today's people are Christianized but still practice their native religion. We had a wonderful guided tour and exchanged some gifts with our guide at the church. The people of Acoma are known for their distinctive pottery and some residents were selling their wares in front of their homes. Many Skyscrapers members parted with a lot of money to bring home some wonderful pieces.

We headed back home to Rhode Island the next day tired, but all having had a great time. I have to thank a few people that made all



Above: We rented a portable Dobsonian telescope with the intention of taking it to a dark sky site we'd find during our travels. As it turns out, all of our day trips found us back at the hotel rather late, and needing to rise early to hit the road again the next day left little time to haul out an hour and back to some of the ideal spots that we did find. Fortunately this worked in our favor, as we needed the parking lot lights at the hotel to figure out how to set up the telescope anyway, as it was a rather unconventional design and took some time and effort to get it set up. We did get it going though, and it provided some good views of Saturn. Photos by Tom Barbish.

these trips a great success. Steve Hubbard, Al Hall, Jack Szelka, and Joe Sarandrea had all visited the Southwest on previous occasions and were most helpful and informative. Dan Lorraine helped immensely with the organization aspect of the last two trips. And my wife Karen, a long time veteran of the southwest was also very supportive.

As I write this, I have decided to take a year off from future trips. However, I do plan to return in the future with Skyscrapers. Our next trip will probably be to Colorado and Utah. I look forward to having many of you join me.

Above: We were scheduled to observe with the Albuquerque Astronomical Society on Saturday night, our first night in New Mexico. Cloudy skies that persisted throughout the afternoon finally broke soon after we arrived at their observatory and we were treated to a spectacular New Mexico sunset. Photo by Dan Lorraine. **Right**: Skyscrapers at the General Nathan Twining Observatory, owned and operated by The Albuquerque Astronomical Society. Back row from left: Jerry Jeffrey, Louise Barbish, Dolores Rinaldi; Front row from left: Charlotte Jeffrey, Patricia Cousineau, Joe Sarandrea, Tom Barbish, Marian Juskuv, Jack Szelka, Maria Juskuv, Mike DiToro, Glenn Jackson, Rick Arnold (in back), Jim Hendrickson, Janet Bessette, Steve Hubbard (in back), Fred Swain, Dan Lorraine.


General Nathan Twining
Observatory

Epilogue

On Saturday, May 5, 2007, 79 Skyscrapers members and guests met at Café Romanzo in Coventry, Rhode Island, for a banquet to celebrate the 75th anniversary (May 5, 1932 – May 5, 2007) of the founding of our great organization.

Festivities began at 5:30pm with a cash bar and appetizers that included a cheese table, bruschetta and stuffed mushrooms. The served dinner included: all-you-can eat fresh garden salad, penne pasta with pink vodka sauce, chicken kiev, smashed potatoes and green beans almandine. For dessert there were miniature pastries made on the premises, coffee and tea.

When the dinner began, President Dave Huestis proposed a toast to all Skyscrapers members, past, present and future.

Thank you to Kathy Siok for chairing the 75th Anniversary Celebration Committee. And many thanks to the committee participants, especially to Dolores Rinaldi for organizing this wonderful banquet feast.

About six members who were unable to attend the banquet arrived in plenty of time to attend the business meeting and special presentations.

The banquet ran a little late as most events like this do, but soon President Dave Huestis called the abbreviated business meeting to order.

Top: Steve & Kathy Siok. **Bottom**: Ken & Dolores Rinaldi. Photos by Steve Hubbard. **Opposite**: Dave Huestis receives an award commemorating his three 2-year terms as Skyscrapers president. Photo by John Kocur.

Top: President Dave Huestis presents 1st Vice President Glenn Jackson a certificate of appreciation. Photo by Steve Hubbard. **Middle**: Glenn Jackson presents Dave Huestis with a picture of Smiley and a plaque commemorating Dave's three 2-year terms as President of Skyscrapers. Photo by Steve Hubbard. **Bottom**: Bill Penhallow gives a presentation highlighting his 60 years as Skyscrapers member. Photo by John Kocur.

Under Old Business three new members were voted into membership: Mark Bronson (Calgary, Canada), John Biafore and Dave Rose.

Under Presidential announcements, President Huestis thanked his Executive Committee and appointees for their support during his two year term. He specifically expressed his heartfelt thanks to Glenn Jackson, presenting Glenn with a "certificate of appreciation" for his services to Skyscrapers as First Vice President, saying "If I could have gone to a store called Vice Presidents R Us, I could not have selected a better First VP than Glenn."

Dave thanked everybody and turned the gavel over to incoming President Glenn Jackson.

Glenn presented Dave with a beautiful framed picture of Smiley with a plaque commemorating Dave's three, two-year terms as Skyscrapers president over three decades (1982-1984; 1991-1993; 2005-2007).

Glenn introduced the newly elected Executive Committee and appointees, thanked everyone for attending, and adjourned the meeting.

The first presentation, "Skyscrapers at 75", was given by longtime member Gerry Dyck. Gerry presented a Powerpoint slide show showing images contributed by Skyscrapers members, accompanied by Haydn's 75th Symphony. The images included historical looks at Skyscrapers and their activities, Seagrave Observatory, meetings, field trips, public outreach and astro photography. As usual, Gerry did an outstanding job of capturing the essence of the Skyscrapers organization.

The second, and feature presentation, entitled "Skyscrapers—A Historical Perspective," was given by lifetime member Dr. William (Bill) Penhallow. Bill recounted some of his personal memories over 60 years (1947–2007). Some of the founding and charter members Bill knew. He is our only link to those folks who many of us have only read about in our 25th Anniversary book, *A Quarter Century of Skyscraping*, or in the society's monthly meeting minutes. Thank you Bill for providing us a glimpse into the hearts and souls of our predecessors to whom we owe so much.

Our 75th Anniversary banquet and monthly meeting was a tremendous success. It was a superb event to commemorate the celebration of Skyscrapers diamond anniversary.

I look forward to our 100th anniversary on May 5, 2032.

David A. Huestis
Historian, Skyscrapers, Inc.

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STATE OF RHODE ISLAND

IN GENERAL ASSEMBLY

JANUARY SESSION, A.D. 2007

HOUSE RESOLUTION

CONGRATULATING SKYSCRAPERS, INC. ON THE OCCASION OF ITS 75TH ANNIVERSARY

Introduced By: Representatives Naughton, Kennedy, Walsh, Ginaitt, and McNamara

Date Introduced: April 12, 2007

Referred To: House read and passed

WHEREAS, Skyscrapers, Inc., was founded in 1932 by Dr. Charles Smiley of Brown University as the Amateur Astronomical Society of Rhode Island. The organization was incorporated in 1936 as an educational, non-profit organization; and

WHEREAS, On May 5, 2007, Skyscrapers, Inc. celebrates its 75th Anniversary; and

WHEREAS, The second oldest continuously operated amateur astronomical society in the United States, Skyscrapers, Inc. has been educating Rhode Island citizens and raising awareness of astronomical phenomena through media releases and special observing opportunities for seven and half decades; and

WHEREAS, Seagraves Memorial Observatory in North Scituate is wholly owned by Skyscrapers, Inc. and provides astronomical education to school and civic groups in Rhode Island through the utilization of four operating telescopes; and

WHEREAS, The observatory maintains an 8¼-inch historic Alvan Clark refractor, a 12-inch Patton reflector, a 16-inch, and a 12-inch Meade computer controlled Schmidt-Cassegrain telescope for viewing; and

WHEREAS, On every clear Saturday night, Skyscrapers, Inc. invites and encourages the general public to freely view the magnificence of the heavens at Seagrave Memorial Observatory; now, therefore be it

RESOLVED, That this House of Representatives of the State of Rhode Island and Providence Plantations hereby honors Skyscrapers, Inc. on the occasion of its 75th Anniversary. Rhode Island, and we wish them continued success in all their future endeavors; and be it further

RESOLVED, That the Secretary of State be and he hereby is authorized and directed to transmit a duly certified copy of this resolution to David A. Huestis, President and Historian of Skyscrapers, Inc., Amateur Astronomical Society of Rhode Island.

Left: Proclamation document from the Rhode Island Legislature honoring Skyscrapers 75th anniversary. **Above, top**: This certificate was displayed on a chair draped with a black shawl to honor all of the Skyscrapers members that have left this earthly spaceship throughout our 75 year history. Without their hard work, dedication, and spirit of volunteerism, the organization may not be here today celebrating its 75th anniversary. And the spirit of volunteerism is stronger in the organization now than it ever has been! **Above, middle & bottom**: Dave Huestis and Jim Hendrickson put together a 75th anniversary commemorative cachet and an actual US postage stamp featuring Charles Smiley. The cachets were presented to all of the members at the 75th anniversary banquet. Items from the Skyscraper collection.

Officers

	May 5, 2006 - May 5, 2007	May 5, 2007 – May 2, 2008
President	David A. Huestis (#52)	Glenn Jackson (#53)
First Vice-President	Glenn Jackson	Steven Hubbard
Second Vice-President	Ted Ferneza	Kathy Siok
Secretary	Mercedes Rivero-Hudec	Nichole Mechnig
Treasurer	Allen Schenck	Jim Crawford
Members-at-Large	1. Jerry Jeffrey 2. Jim Brenek	1. Jim Brenek 2. Joe Sarandrea
Trustees	Richard Arnold Marian Juskuv (resigned) Tracey Haley Robert Horton	Tracey Haley Robert Horton Jerry Jeffrey
Newsletter Editor & Web Master	Jim Hendrickson	Jim Hendrickson
Special Events Coordinator/Hospitality	Dolores Rinaldi	Dolores Rinaldi

Past Presidents

Rev. John G. Crawford
May 1932 - May 1933

Ernest R. Hager
May 1933 - June 1934

Dr. Harry L. Koopman
June 1934 - June 1935

Harry A. MacKnight
June 1935 - June 1936

Franklin S. Huddy
June 1936 - June 1937

Frederick W. Hoffman
June 1937 - June 1938

Donald S. Reed
June 1938 - June 1939

Archibald C. Matteson
June 1939

Roy K. Bilsborough
June 1939 - June 1940

Samuel M. Holman
June 1940 - June 1941

William J. Gardner
June 1941 - June 1942

Mrs. Charles H. Smiley
June 1942 - June 1945

Miss Maribelle Cormack
June 11, 1945 - June 8, 1946

Stanley S. Gairlock
June 1946 - November 1947

W. Edwin Stevens
November 1947 - May 1950

C. Bird Keach
May 1950 - May, 1951

Rear Admiral Scott Umsted
May 1951 - June 1953

Miss Mary Quirk (Mrs. Hoffman)
June 1953 - July 1954

Clifford W. Brown
July 1954 - May 1956

Ralph C. Patton
May 1956 - May 1958

John Euart
May 1958 - May 1960

Virginia Stevens
May 1960 - May 1962

Dan Raiche
May 1962 - May 1963

Rev. Philip Kierstead
May 1963 - May 1964

Clifford Brown
May 1964 - May 1965

Stanley Partington
May 1965 - May 1966

Arther Horwarth
May 1966 - May 1967

William Penhallow
May 1967 - May 1969

Clifford Brown
May 1969 - May 1970

Harvey K. Harkins
May 1970 - May 1971

John D. Bacon
May 1971 - May 1972

David Armitage
May 1972 - May 1974

Ed Turco
May 1974 - May 1975

Steve Siok
May 1975 - May 1977

Kathy Siok
May 1977 - May 1979

Steve Hubbard
May 1979 - May 1981

Rick Lynch
May 1981 - May 1982

Dave Huestis
May 1982 - May 1984

Brian Magaw
May 1984 - May 1986

Bill Gucfa
May 1986 - May 1987

Dan Lorraine
May 1987 - May 1988

Gerry Dyck
May 1988 - May 1989

Kathy Siok
May 1989 - May 1991

Dave Huestis
May 1991 - May 1993

Steve Siok
May 1993 - May 1995

Conrad Cardano
May 1995 - May 1996

Roger Forsythe
May 1996 - May 1998

Bob Napier
May 1998 - May 2000

Dave Hurdis
May 2000 - May 2002

Steve Hubbard
May 2002 - May 2003

Dan Lorraine
May 2003 - May 2005

Dave Huestis
May 2005 - May 2007

Members
(as of May 5, 2007)

Theodore L Agos
Tilo R. Angiollili
Patricia A. Armitage
Richard Arnold
Tom and Louise Barbish
Fred Baumgartner
Linda Bergemann
Janet M. Bessette
John & Johnny Biafore
Peter and Jane Bonacich
James Brenek
John W. Briggs
David Brinegar
Mark Bronson
Conrad Cardano
Paula G. Carmichael
Lee Carpenter
George Cernigliaro
Chris Chapman
Joel Cohen
William J. Connor
Kevin Corente
Craig Cortis
Patricia Cousineau
James M. Crawford
Kathy Cyr
Louis Del Sesto
Michael DiToro
David R. Dixon
Ken Dore
Frank Dubeau
Gerry Dyck
Peter J. Elkins
Kathryn Euart
Anthony and Diane Fascia
Theodore Ferneza
Marilyn H. Fetterman
Ralph L. Fletcher
Byron Foote
Bob Forgiel
Roger Forsythe
James E. Frutchey
Donna Gaumond
Verna Gauthier
William E. Gillen
Larry Gould
William C. Gucfa
Tracey Haley
Allen Hall
Earl E. Handrigan
Chris Harkins
Mark Hartonchik
Ed Haskell
Jim Hendrickson
David Hintz
John T. Hopf
Robert Horton
Robert Howe
Steve and Sue Hubbard
David A. Huestis
David Hurdis
Glenn Jackson
Jerry R. Jeffrey
David Karevicius
John R. Kellam
A. Rayner Kenison
Richard T. King, Jr.
Dale Klatzker
Mark L. Knowles
John Kocur
Michael Koran
Todd Kozikowski
Bernard Kubaska
Gene Kusmierz
Patrick Landers
Gregory Laquadra
Dan Lorraine
Bill Luzader
Rick Lynch
Darlene Magaw
Steve Massarone
Bruce McDermott
Nichole Mechnig
Lloyd & Bruce Merrill
Ruth L. Miller
Bob Napier
William Naughton
J. George O'Keefe
Jeffrey Padell
William S. Penhallow
Kay Peterson
Herbert ("Pete") Peterson
Charles J. Piso
Daniel C. Raiche
Lucine Reinbold
Henry A. Renaud
Raymond G. Ricard
Thomas Rinaldi
Dolores Rinaldi
Mercedes Rivero Hudec
Sam Robbins
Dave Rose
Ernest L. Ross
Anthony Salotto
Joseph M. Sarandrea, Jr
Gail Scanlon
Allen Schenck
Raymond Schmidt
Graham Shein
Kathy and Steve Siok
Chester W. Siok
Charles Stanfa
Stan Steliga
George Strayer
Fred H. Swain
John A. Szelka, Jr.
Noah Szosz
Scott Tracy
Anthony Tripodi
Ed Turco
Bill Walsh
Daniel Warren
Nancy White
Carol B. Wilmot
John Wilmot
Edward Zarenski

Member Profiles

When I became President of Skyscrapers for a third time in May 2005, I wanted to increase the content of our Skyscraper newsletter. In preparing the 75th Anniversary book, and having been well informed about many of the key Skyscrapers who founded our organization and carried on our traditions for decades, I realized I really didn't know much about these individuals other than what I could glean from the monthly meeting notes and occasional writings and letters to and from Professor Smiley and others. I did get some insight from Bill Penhallow on some of these early Skyscrapers pioneers, but I wished I could have had more information about them… a members profile if you will.

That's when I decided to ask some of our members in 2005 to provide their stories in a series of articles entitled "How I Became an Amateur Astronomer." Not only did I think they would have some interesting stories to share, but it would also provide a forum for our members to get to know one another a little better. To see what they had in common, and to see what they could possibly learn from each other.

These articles first appeared in *The Skyscraper* beginning with the November 2005 issue. Jim Hendrickson and I decided it would be nice to include them in our 75 year book to give future generations an insight into the Skyscrapers membership during the midpoint of the first decade of the 21st century.

Thank you once again to the members who contributed articles for this profile series.

Dave Huestis reads excerpts from Richard Proctor's 1875 book *Transits of Venus* during the transit on June 8, 2004. Photo by Jim Hendrickson.

An Amateur Astronomer's Life
Member Profile: David A. Huestis

I was born in Providence, Rhode Island, on January 17, 1953. In 1959 my father's job change moved our family to Warwick, Rhode Island, where I attended grades one through five (1959-1964) at John Greene School.

It was in the fourth grade (1962-1963) that I recall being introduced to astronomy for the first time. A class play about the solar system was presented to the entire student body. I was chosen to portray the Sun in this production. Two short years later, after our family moved to North Smithfield, Rhode Island, my sixth grade class (1964-1965) presented the same play. This time I portrayed the professor astronomer.

During my adolescent life the US space program was in full swing. Though I do not remember Sputnik, I do remember going out after sunset to watch Echo I (launched August 12, 1960; a high altitude aluminized balloon, 100 feet in diameter) and Telstar I (launched July 10, 1962; a true satellite) traverse the sky. I was also very interested in watching the Mercury, Gemini and Apollo programs.

However, I do not attribute my early interest in astronomy to the

space program as many of my contemporaries do. Two books played an key role in my desire to learn about the universe.

While still in the sixth grade, one of the first books I ever purchased was H.G. Wells' *War of the Worlds*. I couldn't put the book down. I was fascinated by the idea that life could exist out there among the stars. I had only a rudimentary knowledge of astronomy, but I did know that the stars were suns somewhat like our own Sun, and that planets may possibly surround many of them. Wells sparked that interest in me about the possibility of extraterrestrial life. I also became an avid science fiction reader.

At the same I purchased another book, *Flying Saucers: Serious Business*, by Frank Edwards. This work discussed many of the "classic" flying saucer sightings and offered the author's opinion on their validity. I wanted to believe that our Earth was not the only inhabited world in the cosmos, but I did know that the distances to even the closest stars would take an inordinate amount of time to traverse given the laws of physics.

Still, I would often venture outdoors and look towards the heavens and wonder if that star, or that one over there, possessed a system of planets. And possibly one or many of them were inhabited by advanced beings. At first my observing was random, but then I purchased a planisphere and began to learn the constellations.

The first real astronomical observation I recall was probably on the night of March 23, 1969 when the television news reported a display of the northern lights in progress. I remember going outdoors and looking to the northeast sky to see these undulating waves of greenish light brighten and fade repeatedly. It was quite a beautiful sight.

The second astronomical observation I made came in 1970. I remember observing a partial solar eclipse one Saturday afternoon from my grandmother's front porch steps in Providence, rashly using nothing more than a couple of pair of sunglasses and "sneaking" a few quick glimpses from time to time. This was the March 7, 1970 solar eclipse that was total over the island of Nantucket.

One week after high school graduation in 1971, I attended a one-year business school for computer programming and accounting. Even before graduating from this program, I got a part-time job as a computer operator at Ann & Hope in Cumberland, Rhode Island. Soon thereafter, with a few dollars in my pocket, I purchased a 6-inch Edmund Scientific reflector sometime during the summer of 1972. Armed only with a copy of the *Farmers' Almanac*, I could easily locate Venus, Mars, Jupiter and Saturn, as well as the Moon.

Without knowing better, I even used a green plastic solar filter for observing the December 1972 partial solar eclipse from my yard in North Smithfield. When I moved the telescope off the Sun to change eyepieces, the filter shattered when it was exposed to the cold air!

At the end of 1974 I finally paid a visit to Seagrave Observatory during one of the society's public open nights. I was so impressed with the knowledge of the volunteer (Mike Passano) that evening that I applied for membership at the December 1974 monthly meeting, and was voted into membership at the January 1975 meeting.

It didn't take long for me to integrate into this outstanding group of individuals. The Skyscrapers renaissance was underway. The first Skyscraper newsletter was hot off the press, and the portable planetarium project was being planned. It was a busy time for the organization. I helped out when I could, but a second shift job prevented me from many weekday events. However, every weekend you would find me out at Seagrave ready to help with the upkeep of the grounds and buildings, as well as to show the wonders of the heavens through our 8¼-inch Alvan Clark refractor during our Saturday public nights.

Between January and March 1976, I made one of the best purchases of my astronomical life. I bought a Criterion RV-6 and a 4¼-inch f/5 reflector from Skyscrapers member Dan Lorraine for $250. It was money well spent. I still own these two instruments today. The 4¼-inch, with a superb Ed Turco mirror, has been on many eclipse expeditions.

I soon tired of dragging this telescope in and out of my apartment in Uxbridge, Massachusetts.

So starting in the summer of 1976 several Skyscrapers members helped me to clear some land so I could build a 12-foot by 12-foot two story roll-off roof observatory to house my Criterion RV-6 reflector. Construction soon began and was completely finished in 1978 with the addition of the second floor. I hosted many star parties at that property from 1977 to May of 1982.

My interest soon turned to solar observing (some Skyscrapers members joked that it was the only celestial object I could find!). And that discipline quickly lead to my fascination with observing aurora. In 1978 I founded the Aurora Alert Hotline, a telephone tree of observers who would call one another when an aurora was sighted. At one time over 150 individuals participated, including a park ranger out in Yellowstone! The Hotline was successful for many years. Though it was still "active" in more recent years under the direction of Steve Mock of the ATMs of Boston, the advent of the internet and the availability of real-time data, which has allowed folks to be more proactive, has contributed to its demise.

I still love to view and photograph aurora displays, though at this writing I have not upgraded to a digital camera for this activity. One of my aurora images appeared in the July 1978 issue of *Sky & Telescope* magazine. That same image was selected by Kelly Beatty, et al, for inclusion in *The New Solar System* book, the first (1981) and second (1982) editions. That exposure led me to have two aurora images, plus a couple of quotes, appear in a sky phenomenon book entitled *Sunsets, Twilights and Evening Skies* by Aden and Majorie Meinel of Arizona in 1983.

During the late 1970s, while I was working a second shift job, I used to provide planetarium programs in the afternoon in the Cormack Planetarium at the Roger Williams Park Museum. I particularly recall being chastised by a teacher, who had brought in a group of students, for being a native Rhode Islander (one of the astronomical objects mentioned during the show was Satin [sic]!).

Over the years I had observed several partial solar eclipses. But in February 1979, I had the opportunity to travel to Gimli, Manitoba with a group of Skyscrapers (see group photo elsewhere in this book)

and members of the Royal Astronomical Society of Canada (RASC) of Toronto to view my first total solar eclipse (February 26, 1979). It was so awe inspiring that I had tears in my eyes when totality ended. And that wasn't a good thing, for the temperature during totality had dropped from +12 degrees Fahrenheit down to zero 0 degrees Fahrenheit. Not only did my tears freeze, but my camera advance froze just after I snapped a picture of the diamond ring at the end of totality.

I was definitely bitten by the eclipse bug. I was so impressed with the Manitoba eclipse that I quickly vowed to see the next one, just less than a year away. Well, the next one would be a little more challenging than just booking a flight to Toronto. The February 16, 1980 total solar eclipse would be best seen from Tanzania in East Africa. Walter Mudgett of the ATMs of Boston organized an eclipse/safari expedition. Walter Smith, a new member of Skyscrapers at the time, decided to join this two-week adventure as well.

This trip was an experience of a lifetime. I never would have had this opportunity to visit East Africa had it not been for my interest in astronomy and eclipses. It wasn't until about mid way through the two week adventure, while I was standing in Olduvai Gorge, that it finally registered in my psyche where I was.

I was excited to visit many of the places I had read about as a child in geography class, like the Serengeti Plain, Ngorongoro Crater and Mount Kilimanjaro, just to name a few. And the wildlife was outstanding. Lions and cheetahs and giraffes, oh my!

And to top it off, a small band of clouds completely melted away as the temperature dropped just before totality. So we observed this unique phenomenon in all its glory. We even didn't mind the armed guards who stood watch during totality should any of the local lion population get the wrong idea.

At the end of May, 1982, I moved to a small cottage on Ponagansett Reservoir in Glocester, Rhode Island. This location provided some nice dark skies. Many trees did make it difficult to observe from the property, but often I would take my canoe out onto the lake and just stargaze without optical aid. During a few of the very cold winters I spent there, the lake would freeze up solid. Occasionally I would set up my telescope on its frozen surface many yards from shore to get a better view of the dark sky. One night an extremely loud safety crack a few feet away ended that practice.

In March 1983, I met Tina Pala at the Lowell Lecture Series at the Museum of Science in Boston. She helped coordinate the series with then Hayden Planetarium director Jack Carr. Tina also presented planetarium shows, and also wrote one of their most popular programs on the cataclysmic demise of the dinosaurs by an asteroid.

A small band of Skyscrapers journeyed to Greenville, South Carolina in May 1984 for an annular solar eclipse. This group accurately positioned itself on the centerline and witnessed a maximum of ten seconds of annularity. See more details on this eclipse expedition elsewhere in this book.

I proposed to Tina on her birthday on October 16, 1984. Just over a year later we were married on October 26, 1985 on Cape Cod. Many

close Skyscrapers attended our wedding ceremony and reception, and still comment about it to this day.

As you may recall, Halley's Comet was slowly making its way towards the Sun. I had already seen it at about 13th magnitude using the society's 14-inch Dobsonian reflector one evening in September with member Steve Siok. I knew I would be able to see Halley during our honeymoon from Key West, so I brought along my RV-6 reflector. Sure enough, from the Southernmost Hotel, I convinced the management to turn off the outdoor lights so I could get a glimpse of Halley once again. We had even posted a notice on the premises that guests were welcome to view the comet as well.

See some of the details about the public outreach Skyscrapers did accomplish in Rhode Island concerning Halley's visibility during the late fall and early winter of 1985-86 elsewhere in this book.

In April 1986 we booked a trip with the ATMs of Boston for a week of Halley Comet viewing, and diving and snorkeling, from the island of Bonaire in the Netherlands Antilles. Several Skyscrapers members attended as well. The weather was perfect. The snorkeling was fantastic. The skies from one part of the island were absolutely superb. When a cloud passed in front of the starry background, the cloud was silhouetted by the light from the stars. We also got a great look at Omega Centauri.

Oh, Halley was visible, but as far as I'm concerned, Omega Centauri was more impressive. You see, Halley had a tail disconnection event occur just before we arrived. A new tail was just forming, but it was not what we had expected. The locals kept on telling us, "You should have been here last week!" Fortunately the view of the fish and coral under the calm sea compensated for Halley's disappointing appearance.

In 1991, members of Skyscrapers and the Astronomical Society of Greater Hartford (ASGH) (specifically Brian Magaw and Scott Tracy) planned an eclipse expedition to Hawaii for the July 11 event. Though we were clouded out, we all had a great time exploring this tropical paradise. See details about this expedition elsewhere in this book.

Since 1991, with the help of various members of the executive committee, I have written three successful grant proposals to the Champlin Foundations for a total of $59,029. These grants helped the society make much needed renovations to our buildings, as well as to purchase the 16-inch Meade LX200.

Because of my interest in aurorae, in 1992 the editors of *Sky & Telescope* magazine asked me to review a book by Neil Bone called *The Aurora: Sun-Earth Interactions*. My review appeared in the November 1992 issue (page 524). Only a few months later I was fortunate to be asked to review yet another new work on the same topic. The February 1993 issue (page 52) contains my review of geophysicist Neil Davis' *The Aurora Watcher's Handbook*.

On May 11, 1994, several Skyscrapers members (Steve, Kathy and Chet Siok; Linda Bergemann; and Bill and Ruth Gucfa) joined Tina and myself at our timeshare at Attitash Village in New Hampshire. This location was just north of the centerline for an annual solar eclipse. The partial phases before annularity were cloud-free, but thick clouds blocked almost all of the annular phase. We did manage a few seconds'

glimpse at one point when the clouds thinned. They acted as a filter, so our movie and video cameras managed to capture some views.

I am proud to note that I have served three two-year terms as president during the last 32 years: 1982-1984, 1991-1993, and 2005-2007. During that time I have also served as secretary, and have held the office of first vice-president and second vice-president several times. I have also been the Skyscrapers historian: 1984-1986 and 1998-present.

Among my other accomplishments: since 1985 I have written a feature column for *The Woonsocket Call* entitled Ask the Astronomer, and, since the mid-70s, have supplied the local media (newspapers, radio and television meteorologists) with news of upcoming astronomical events. I have also had semi-regular features in *The Observer* (now *The Valley Breeze-Observer*), *The Kent County Daily Times*, *Northwest Neighbors* and *The Narragansett Times*, with occasional mention in *The Providence Journal*.

I have also participated in many taped and on-air interviews with the local television stations to promote interest in observing astronomical events such as solar and lunar eclipses, meteor showers, northern lights displays and close encounters with Mars.

I derive the most satisfaction from public outreach when thousands of people are enlightened to sky happenings they can observe with little or no optical aid. At the same, I also promote Skyscrapers at every opportunity. And when I personally participate in a public outreach program that involves showing the wonders of the heavens to students of any age, I am on a euphoric high for days.

Why? I hope that possibly one student in a large group might get turned on to astronomy and space science. If they follow their dreams, one of those young people may become the first human to set foot upon Mars! That would be quite gratifying.

Throughout the years I have provided astronomy programs for the Audubon Society of Rhode Island. In addition, for a decade I taught a "Telescopic Astronomy" course at the Boston Museum of Science, ending in 1995. That same year I also completed my seventh year teaching a mini-course on "How to Choose a Telescope."

Due to some encouragement from my good friend and kindred spirit, Skyscraper member and past historian Bill Gucfa, I became fascinated with not only the history of Skyscrapers, but also that of Frank Seagrave. With only a few faded copies of early newspaper articles about Frank Seagrave to guide me, I began to research this fascinating "amateur" astronomer. One of my proudest moments as a Skyscrapers member was back in 1986, when my article entitled "Stardust Memories: Frank Evans Seagrave and Halley's Comet - 1910," was published in the May 1986 issue of *The Rhode Island History Journal*. This article told the story of Seagrave's Halley Comet calculation, predictions, observations and advice to a concerned public.

And more recently, I have discovered evidence of a keen friendship between Seagrave and Percival Lowell. I hope to pursue further research on that topic at a later date.

In conclusion, I wish to express my wishes to all Skyscrapers members for a happy 75th anniversary celebration. And many thanks for

allowing me the privilege to contribute to the Skyscrapers organization during these last 32 years.

What will the next 25 years bring? I have no doubt in my mind that this great organization will be around to celebrate its 100th anniversary.

So a note to future Skyscrapers members: if you are volunteering on some wintery Saturday public night 25 years from now, and a 79 year-old man sporting only a flannel shirt for warmth seems to know more about the Clark telescope and its history than you do, please invite him to take yet another look through that wonderful instrument. For that one glance will bring back all the memories of nights long past and will provide him more warmth than any winter coat could ever accomplish.

Member Profile: Al Hall

An Historic 8¼-inch Alvan Clark Returns To Its Former Glory

I can remember my first visit to Seagrave Observatory in North Scituate, Rhode Island as clearly as though I'd been there yesterday. The year was 1971, and I had just turned fourteen years old. I was always very interested in amateur astronomy, and in fact had already accumulated six years of experience examining the heavens with my small Tasco telescope. For those of you who don't remember, 1971 was a very important year for astronomers. August of that year marked one of the closest approaches of Mars to the Earth in many years. It was going to be a whopping 24.8 arc seconds in diameter, and I couldn't wait to see it!

At the time I had an old Unitron 2.4-inch refractor. The previous year I had worked all summer pitching hay at "Old Man Schofield's" farm to raise the $75 purchase price. Knowing that I was in for a special treat as Mars was, and still is one of my most favorite objects to observe, I found myself longing for a little more aperture. I mentioned my desire to find a larger telescope to my father, and he promptly recalled being taken to a small observatory in North Scituate when he was young. The wheels began to turn in my head. I instantly had visions of the possibilities. Wow, a large telescope I wondered who owned it. Would it be possible for me to be at the eyepiece during the upcoming opposition? My excitement grew when my father said that he would try to find out if the place was still there. This was early in June of that year.

Unfortunately, about two weeks before my birthday in June, I fell ill and had to be taken to the hospital. Sometime during the first day or two, my mother came to visit and she brought great news. She had stopped at the Town Hall in Scituate and had found out that in fact the observatory was still there, and even better she had the address of the people who owned it. My mother said that I should write them a letter, and if it was all right with the people at the observatory, my father would take me there for a visit on my birthday.

I couldn't wait to get started. The words had never flowed so easily from my pen. The people who owned the telescope were a "company", called "Skyscrapers Inc." Not knowing at the time that Skyscrapers,

Al Hall with the restored flyball governor to be installed on the Clark telescope. Photo by John Kocur.

Inc. was in fact the Amateur Astronomical Society of Rhode Island, I addressed my letter to the "Head Astronomer", and asked if it would be OK with him, if I could help out with the observing session for the upcoming Mars opposition.

I was in the hospital for about ten days, lamenting the possibility of having to spend my birthday there. One night, as I fell asleep, I remember quite vividly looking out the window of my room, and there in the East was Mars, rising slowly out of the trees. It was brilliant, and the color was incredible, a truly memorable sight. That was the last image my eyes beheld that evening as I drifted off to sleep.

The next day my mother came in with a letter addressed from Skyscrapers. I couldn't wait to tear it open. As I read the letter I learned that Skyscrapers was in fact a society of amateur astronomers. They wrote that they would be "very happy" to have me come for a visit on my birthday, but that I should come on the day before, a Saturday, as they had scheduled a public observing night for that date. The doctor came in that same morning and said, "Everything is fine, you should be able to leave today." At those words, I learned what it was like to fly!

Saturday June 19, 1971 arrived with great promise, as the sky was crystal clear. The whole day seemed to drag along as I eagerly awaited the coming evening. Finally, it was time to head out, and my father packed me into the car and off we went. Seagrave Observatory is on Peeptoad Road in North Scituate and I lived in Cumberland, so the drive over took about 30 minutes. As we headed out onto the country roads I remember staring out the window, up at the sky, just to make sure that it was still clear.

We arrived at Seagrave Observatory early in the evening and we pulled into the small grass covered parking lot. When I climbed out of the car my first order of business was to look up and check out the sky. The stars were incredible, and even though it was still early in the evening the overwhelming beauty of the country sky froze me in my tracks. Peeptoad Road was aptly named; peeptoads could be heard making quite a loud chorus in the nearby woods, and I could now see the observatory turret-shaped dome, peeking from behind a small row of trees. The red lights in the dome confirmed the presence of astronomers actively examining the heavens.

Of course it was very dark and we had a hard time walking, so we were moving slowly, kind of feeling our way along. Suddenly, I heard a deep voice reach down from an observing deck that went part way around the circular brick observatory building.

"Hello, who's there?" a voice called. As I looked up I could make out the shadowy figure of a tall man silhouetted by the red dome lights shining through the doorway. My father replied, "Hello, I'm Roger Hall and this is my son Allen."

The voice responded, "Ahhhh, you must be the young man who wrote us that very eloquent letter a few weeks ago. I'll meet you down stairs in the anteroom."

My father and I opened the screen door to the small anteroom and stepped inside. This was a small office attached to the observatory. Inside, directly ahead was a narrow set of stairs that led up to the observing

room. To my left was a small antique desk and leather chair. There were bookcases, filled with books on astronomy, to each side of the desk, and the whole room was bathed in a warm red light, which made you feel quite comfortable. Upon the desk there was a lamp, which also had a red light. This desk lamp was illuminating the latest issue of *Sky & Telescope* magazine. To the side of the magazine was a scratch pad, and an old silver pen and ink well, which I later learned had belonged to Frank Seagrave, the original owner of the observatory and grounds.

We were there only but a moment when I heard the heavy thud of footsteps on the old wooden stairs, coming down from the narrow stairway ahead of me. A tall elderly man emerged and he bent slightly to avoid hitting his head on the top of the short doorway. He extended a broad smile and welcoming hand to my father, and introduced himself as John Bacon, President of Skyscrapers. He then looked down at me with that same broad smile and said, "And you must be young master `Hall comma A'"; I later learned that John Bacon humorously greeted everyone with their last name and first initial. I was in total awe and amazement; wow, a "REAL" astronomer! "I bet you're anxious to see the telescope, so why don't we head up?" All I could muster was a quick nod.

As we climbed the darkened stairway, I could see the dim red light shining down from the observing room, and then I caught my first glimpse of the old telescope, and it was HUGE! Mr. Bacon led us up onto the observing deck and began to describe the telescope. "This is an 8¼-inch refractor," he said, "that was built in 1878 by a very famous craftsman named "Alvan Clark". As he was describing the instrument, I was amazed by the intricacy of the weight drive and gleaming brass setting circles. The mounting was set upon a rectangular shaped concrete pier that extended down through the floor into the basement. To the front side, the east facing side of the pier, I could see weights, which hung from a sprocket gear. The chain that connected them circled up to a beautiful flyball governor. The weights of the governor were silently spinning around, regulating the tracking of the telescope to keep it perfectly aligned with the sky. I was instantly struck by the magnificence of this old telescope, the complexity of which seemed well beyond my grasp. I remember thinking to myself, "Wow, you have to be a very special kind of person to get an opportunity to operate an instrument like this."

There were several people standing around the great refracting telescope, and one peering into the eyepiece. Mr. Bacon introduced me and my father to the rest of the people there, and as he did the gentleman at the eyepiece looked up and said, "Hello, I'm Roger Menard. I bet you'd like to take a look."

"What are you looking at?", I asked.

"Jupiter", he smiled.

I recall Jupiter being rather high in the sky that evening, close to the meridian, and yet being only 14 years old, I could not reach the eyepiece. My enthusiasm had to be restrained for yet another short time, as Mr. Menard wheeled a multi-stepped ladder over to the telescope. My impatience grew as he flipped up several of the upper steps to get them out of the way for viewing. "I'd better take one more look, just to

make sure we're still centered," he said. "Yes, the seeing is very good tonight, you're in for a real treat."

Mr. Menard shone his tiny red flashlight onto the steps of the ladder and indicated that I should watch my step. As I climbed the first two or three steps, my mind had a vision of Jupiter as I had seen it in my small 2.4-inch refractor. Not knowing what to expect, I was quite unprepared for my first view through the great refractor. Jupiter looked like a basketball; it was HUGE! I instantly blurted out, "WOW, look at all the festoons," a comment which immediately cemented my relationship with all the other people in the room. From somewhere in the darkened room came a voice, "Can you make out the split in the Equatorial belts?"

"Yes, as clear as can be." I replied. I stared at the giant planet for what seemed to be an eternity. The image is still frozen in my mind as if I had taken a mental photograph. Suddenly I noticed the four Galilean moons, out towards the edge of the field. Mr. Bacon asked, "Do you know the names and can you identify them?"

"Well, I know the names of the four moons, Ganymede, Callisto, Europa and Io, but I can't tell which is which", I replied.

"Would you like to learn how to tell?" he asked.

My answer, "Sure, that would be great."

Mr. Bacon lead me back downstairs to the desk in the anteroom and the copy of *Sky & Telescope* that was sitting there. He flipped the pages open and came to page 397, which was the page that gave a brief description of the planets for the month of June. On the bottom right hand side of the page was a chart of Jupiter's satellites. I had seen this chart before, but had never learned how to use it. Mr. Bacon pulled a ruler from the one of the desk drawers and laid it across the chart. He said, "You see, you have to line up the ruler across the date and approximate time as it is identified here in this column, see?" I immediately grasped the implications as my mind jumped ahead to the pick up the curve for each moon's orbit and its intersection with the line drawn by the ruler. Europa was to the left; Io, Callisto, and Ganymede were to the right. Mr. Bacon seemed quite pleased, "That's it, now you've got it. Now you should be able to tell me which moons you're looking at. Let's go back up and do some more observing." As we climbed back up the stairs I asked, "Can we see M13?" Mr. Bacon replied, "So you know your Messier list, I'm sure that we'll be able to see M13 and probably M57 as well." I was a little disappointed however when I asked about Mars. Mr. Bacon said that Mars would be rising a little too late to be seen that evening, so I would have to come back next month.

So began my lifelong affiliation with Skyscrapers and Seagrave Memorial Observatory. Two months after my first visit I became the youngest member of Skyscrapers at the tender age of fourteen. The inspiration that the old telescope gave me, and the many mentors and friends who I met over the years, has set me squarely upon a path which has led to awe, wonder, and amazement. It has made me a true "Citizen of the Galaxy"!

Little did I know how intimately connected I would become with this grand old telescope as time went by.

Many years have passed since my fourteenth birthday; my life has taken me to many different places. For years I had lived in California, and only recently had I returned back to the East Coast. My wife and I finally settled in a small town in Connecticut, close enough for me to re-establish my membership with Skyscrapers. When I returned to see the old observatory, I was quite distressed by the fact that the Alvan Clark telescope had fallen into serious disrepair. Apparently, the weight drive had been stripped off sometime back in the seventies and a "new, modern" Mathis gear was installed on the telescope. Rather than machining the gear to fit the polar shaft, the shaft was machined to accept the gear. This modification destroyed the functionality of an old sector drive. Parts of the old drive were scattered all over, and some had been stolen, including the original flyball governor unit. Most of the parts were later recovered in the nearby woods; vandals had scattered them to the four winds. During this time the Right Ascension Circle had also been removed to make room for the new drive unit.

After making some inquiries, I was relieved to learn that most of the original parts had been saved, safely stored in the meeting hall. Unfortunately, the flyball governor was never recovered. I spoke to one of the trustees and managed to get the parts out of storage. Sadly, they were in very bad shape. Most of the drive parts were severely corroded. The sight of them looking so, saddened me and at that moment I decided do my best to get the old scope back together.

After securing permission to proceed with the project, Skyscrapers as a group began to set our goals for restoration. Working on an old historic instrument is not something to be taken lightly or irresponsibly. Much research went into all of our decisions before a single part was removed. Our purpose was not just to clean the parts, but to restore them as close as possible to their original condition. Our goal at Skyscrapers was not to maintain any monetary antiquity value. Rather, we sought to evoke an emotional reaction, in not only our members but the general public as well, that would speak to the quality, craftsmanship and ingenuity of Alvan Clark. This was best accomplished, in our opinion, by presenting the telescope completely assembled with its original drive, and buffed and polished, so that all the beauty of the original instrument was restored. The 8¼-inch Clark at Seagrave Memorial Observatory would continue to be a "working" telescope. It is the main instrument for our public sessions and therefore it will receive a great deal of use. We don't think Alvan Clark or Frank Seagrave would be at odds with these goals at all.

As I began to disassemble the old telescope, I quickly realized that all of the brass components were covered by some type of lacquer. I later found out the coating was in fact a polyurethane based varnish, which I will always call the "Varnish From Hell". We simply could not leave the old varnish in place because twenty year old discolored varnish did not fit with our restoration goals, nor was it original to the telescope. This varnish also covered both the RA and DEC circles and their engravings. Now, normally it is extremely unwise to make any modifications to the finish where engravings are present. Unfortunately, after an exhaustive search, the only technique that I could apply was

an aggressive removal of the varnish, which by necessity produced abrasion to the metal surfaces. These abrasions also had to be removed by buffing them out. This buffing process was impossible to accomplish without removing some of the material on the circle's engraving edges. I was VERY sensitive to the quality of the engravings and took the utmost care to preserve them. In fact less than five ten thousandths of an inch of material on the engraving edges were lost to this process, and in my opinion the trade off is one that had to be made in order to return the instrument to its original form, fit, finish and function. There are those who feel very strongly that "ANY" reduction of material is unacceptable. I understand this objection and have great respect for that point of view; we simply disagreed in this particular case. In fact, none of the original finish on this telescope remained. It had been stripped, painted and polished many times before.

I have in the past, and will continue in the future, to apply one guiding test to all my restoration decisions. That is I ask myself, "How would Alvan Clark react to this decision, and would he be pleased with the results?" Being an award winning engineer, craftsman and machinist myself, I feel that I have a very good sense for how he would respond to many of my decisions.

And so… All of the brass parts were stripped of varnish using "Scotch-Brite" and elbow grease. This operation was followed by cleaning and polishing with Brasso. Once the parts were cleaned and polished, I gave them "light" buff on the buffing wheel to remove any introduced abrasions, and to restore a luster to their surfaces. Then I stripped the paint from the parts and castings, and cleaned them thoroughly to remove any remnants of stripper. After they were cleaned the surfaces were primed with a good metal primer, I gave them a thin coat of paint. That being said, some 135 hours later all of the varnish had been removed and the parts were cleaned, buffed, polished, painted, and restored as close as possible to their original condition. Parts that were broken or missing were repaired or fabricated in my machine shop.

The telescope has now been re-assembled and I have fitted a small synchronous motor to power the Sector Drive until such time as I can complete the duplication of the old flyball governor. I anticipate that this will require several more months.

On July 12, Skyscrapers re-opened the telescope for public use at their annual member's cookout. Many of the older members could not recall when the telescope ever looked better. In fact many people hovered around the old 8¼-inch Clark for several hours, just staring at the beauty of the old instrument. This was exactly the effect we hoped to achieve. Now that most of the work has been completed, the old 8¼-inch Clark at Seagrave Memorial Observatory will continue to inspire many more people, both young and old, to the hobby of amateur astronomy, as it did to me when I was a young lad of fourteen.

Oh to be so young…

Jerry and Charlotte Jeffrey at Artists Palette in Death Valley, during the 2004 White Mountain trip. Photo by Dan Lorraine.

Member Profile: Jerry Jeffrey

The Little Blue Book That Changed My Life or How I became an Amateur Astronomer

I became interested in things scientific when I was about eight or nine years old. I read just about everything I could find dealing with science but especially things having to do with space travel. *Coronet*, *Colliers*, *Mechanix Illustrated*, and absolutely anything with Chesley Bonestells stuff in it was my forte. It's a real shame I didn't keep the stuff I collected when I was a kid, but so is life. I loved science but was terrible at math so it looked like my interest in science was going to be short lived, that is until October 1957 when the USSR launched Sputnik.

When Sputnik was launched I was taking business math just so I could graduate from high school with minimum hopes of going to college. I was reading a little blue book by Arthur C. Clarke titled *Interplanetary Flight*. I did alright until I got to the mathematical appendices. I couldn't understand them, not even close. So I took the book to my math teacher and asked him about understanding these appendices in order to try to understand what the USSR had just done. He said I had to learn high level (2nd year) algebra, trigonometry, and calculus before I could understand the book. He gave me a chance to learn these things by letting me sit in the back of his class and work through the 2nd year algebra book and trigonometry book with after class help from him. He said all I had to do was get passing grades on his tests and get through the algebra book

and he would give me an A in his class and recommend me a place at West Virginia State College. I went through both the algebra book and a trigonometry book before graduating from high school the following spring. I never looked back.

My interest in space led me to finish very close to the top of my college class with high averages in math and physics my dual majors. From there I went into the Army because I had a commitment from ROTC, which had paid for most of my education. The Army sent me to missile science school and I became a real rocket scientist but only used the knowledge to command a medium range ballistic missile unit. But even with all this background I never really was able to translate my desires to be involved with space until I retired from the working world.

On many vacations over the past 45 years or so I have tried to visit some astronomical site including MacDonald Observatory in Texas and Kilauea in Hawaii as well as many others. But I never really had the time during my working career to become involved with astronomy per se until I retired.

As a retirement present my wife and daughter bought me an 8-inch Celestron. My wife and I had decided to move to Rhode Island, into a township that doesn't have streetlights beyond the township seat. This move was so we could be close to our grandchildren. My daughter told me that there was an observatory on Peeptoad Road and since I was so interested I should contact them. One day just before we moved into our house in Glocester we were driving by the observatory and saw a car there, so we stopped. My first contact with a Rhode Island astronomer was Ted Ferneza.

I must admit that my real interest in keeping with my education is astrophysics and astrodynamics, which I continue to expand. In order to understand more of this subject and astronomy I have spent considerable time teaching myself spherical trigonometry and all I could about the in and outs of using telescopes. My home is littered with books by Hawking, Sagan, and many others who have dealt with both astronomy and astrophysics.

And as they say the rest is history, but the history just recounted would not have happened had it not been for that little blue book, which I still have.

Donna Gaumond meets Apollo 12 Captain Alan Bean.

Member Profile: Donna Gaumond

Astronomy, My Passion

I grew up, the oldest of nine children in a rustic neighborhood in Cumberland, Rhode Island. As a tomboy, I hiked in the woods and dreamed of living as an Indian with nature. I was a voracious reader and read primarily, ancient history, biographies, historical accounts of Indians, and anything having to do with science. When I was twelve, I wrote to President Nixon about my feelings about the mistreatment of Indians. I received a response from the Bureau of Indian Affairs! What a shocker for a twelve year old kid! I planned on a future as an archaeologist, geologist, anthropologist, a teacher of Indians on a reservation, or a scientist. I had BIG dreams.

Surrounding a small black and white television, my parents, sisters and brothers and I watched as Buzz Aldrin and Neil Armstrong make their historic landing on the Moon. It was my twelfth year and it was at that moment that I added astronomer and astronaut to my list of future occupations. My interest in astronomy was piqued and I added a telescope in addition to my microscope in my scientific arsenal. Unfortunately, I did not know anyone who shared my interest so I traded my telescope for a bicycle.

While camping each summer with my family throughout my childhood, I was fascinated with the stars in the night sky. From reading, I had some familiarity with constellations and planets in the sky, but I did not pursue this study… I would just look in wonder at the sparkling gems.

Lying on the cool ground in an apple orchard with a friend in August one year, I had my first experience with a meteor shower, the Perseids. I looked in awe at the bright streaks of white light radiating out from one area of the sky! I delved deeper into my study of astronomy through reading.

My life became more settled as my daughter matured and I ordered *Astronomy* magazine. It was by reading this magazine that I bought my first pair of Orion binoculars. Along with my first glow-in-the-dark star map and my binoculars, I began my study of deep sky objects and the constellations. My family was hounded by me to see Andromeda's galaxy, star clusters, the nebula in Orion, and a host of other 'discoveries'. Unfortunately, they did not share my interest until the year of the comets. In 1997, when Comet Hale-Bopp graced the night skies, my husband, daughter, son and many of my neighbors were transfixed when I pointed my binoculars at the comet showing a split tail. This actually convinced my neighbors to turn off their lights when I observed!

My independent study must have been adequate as evidenced when I took my first course, Highlights of Astronomy at CCRI. I was so excited about taking the course that I bombarded the professor with questions which she did not appreciate. At one point, after practicing astrophotography at the observatory, I walked with my professor to her car to ask a question that I had held during the class. In an irritated voice she replied sharply, "You need to take a more advanced course. This course is not for you!" I kept quiet after that.

It was while reading my *Astronomy* magazine that I saw a listing of amateur astronomy clubs. There was one in Scituate, Rhode Island! I was at the next monthly meeting with my husband… and I joined. Finally I could be with people who were knowledgeable and had a passion about the cosmos! I was actually shy the first few years being among mostly men and driving alone to the club, so I wasn't very active.

My yearly Star Parties at Metcalf School began when I exposed my enthusiasm for astronomy to my third grade students. Even though it was not part of our curriculum the superintendent gave me permission and financing for the books I needed to teach the subject through literature. Along with the Star Parties, I became involved with the Space Grant at Brown University and had yearly speakers to further amaze my students. One of these speakers, Clara Eberhardy, was involved with the Deep Impact Mission with Comet Tempel and is currently at the JPL analyzing the data received. She was also a speaker at the Skyscrapers monthly meeting in April, 2006!

Last year my self-confidence grew with my increasing age. I became a more active member of the club. I have enjoyed and learned so much at the monthly meetings while listening to the incredible speakers. At the AstroAssembly last year, I had the pleasure to sit beside Story Musgrave during dinner and hear his inspiring presentation. I went to a function with other club members where again I was spellbound watching the moving presentation by Alan Bean, the fourth man on the Moon!

Observing the transit of Venus at Point Judith was a once in a lifetime experience! I was lucky enough to attend workshops presented by Dr. Peter Schultz concerning the up-coming Deep Impact mission, became certified for using Moon rocks in my class, and spent three days at Brown University learning about the sun-earth connection from NASA scientists. Hopefully, when life slows down, I will go along one of the Skyscrapers trips. I can't even imagine the surprises in store for me in the future.

Member Profile: Gerry Dyck

How I Became an Amateur Astronomer

Here are a few vivid memories of events from my childhood and youth which guided me along the path of amateur astronomy. I have related to you several times how my father, Walter, and my Uncle Paul were the two people who laid the groundwork for my astronomical interest by their innovative determination to build a 7-inch f/10 reflector from scratch on their Kansas farm in 1931. This was eight years before I was born. That story can rest, but the fate of the telescope itself should be told.

In 1940 the builders' paths parted as Uncle Paul moved to California and my Dad took his family to Nebraska, where I grew into self-consciousness. The telescope was too massive for a long trip and which one should have it? The solution was to donate it to a high school in nearby Burton, Kansas, where its makers hoped it would live a long and useful life and serve the community as a valued educational tool. But it was not to be. World War II was raging and in the wake of Pearl Harbor came public appeals for scrap metal to support the massive military buildup. The patriotic fervor of the Burton school board overcame their scientific loyalties and the scope was donated to the war effort as junk metal.

When my Dad learned of this outrage he was as mad as a pacifist Mennonite minister might justly be. He made a hurried trip back to Kansas to try to salvage his masterpiece. He was just in time to save the tube assembly from the metal crusher, but not the mount. And so it came to be that my first impression of a telescope was a big, long metal tube to be carried to the backyard and leaned against a chair or fence post. For some reason Dad never remounted the scope. He did lift me up to the eyepiece for my first look at the Moon and the planets. It made a lasting impression. That tube assembly was never remounted until my brother Charlie undertook the project in a welding class in college in 1956.

Dad was always keen on keeping us aware of the sky. I can recall being roused from sleep and lifted out of bed to go outside to see a meteor shower or the sky glowing red and green with the Northern Lights. When I was five or six Dad announced one evening that he would wake us before dawn the next morning to see a comet. And so he did. He drove my sister Evelyn and me in the old Hudson to the eastern edge of town to see a small, but very bright comet. I cannot say which one it was, but it was similar in aspect to Comet Bennet in 1970.

I recall a frightening experience in my seventh or eighth year. We neighborhood boys were playing outside after dark one summer evening when the ground beneath us was suddenly lit up with a greenish glow brighter than the full Moon. We looked up to see the glowing trail of a giant fireball. When I stopped running I was safely under the covers of my bed. I had much to ponder under the covers, for I had been suffering all that day from a guilty conscience from helping myself to some pears from a neighbor's tree. Until I finally summoned up the courage to confide in my mother a week later, I was sure that I had just barely escaped divine retribution for my thievery.

Top: During AstroAssembly 2007, Gerry Dyck gave a slideshow presentation called "Skyscrapers at 75." The presentation was created using PowerPoint software and set to Haydn's 75th Symphony. Photo by John Kocur. **Bottom:** Undated photo showing Gerry Dyck in his observatory.

A happier recollection will resonate with many of you. As a teen I went to our church camp in the sparsely inhabited wilderness of western Kansas. We were all supposed to sleep in our cabins under the watchful eye of our supervisor. But Laurence and I were able to sneak out and spend two or three nights in our sleeping bags under a moonless Milky Way. The brilliance of all those knots of light, which I later learned to attach "M" names to, made a deep and lasting impression. The sky was so vivid that it became for me a thing of mystic awe and wonder. My mind still flies back to those silent nights, those holy nights, when it was not difficult to believe that a divine presence was pressing down from heaven above.

A milestone I shall not forget was when, at about age ten, I was able to carry the steel telescope tube outside on my own. On a cold winter night in 1950 I was able to find the right tube-to-chair angle to target Saturn on my own for the first time. I could not keep this to myself, but had to drag my older sister and brother out to see too. They were mildly impressed by the view. But I was doubly proud—not only of the object of our wonder, but by the fact that I was now an independent observer of the night sky.

My first astronomy book, which I nearly memorized, was Kelvin McKready's *A Beginner's Star-Book*, Knickerbocker Press, 1912. Thanks to this publication my list of known constellations and familiar heavenly objects began to lengthen. I could find M31, the Great "Nebula" in Andromeda, as it was called then. M33, too, was a naked-eye object. Those were the days when Percival Lowell's drawings were Gospel and the opera glass was a serious observing instrument. Brass refractors were the elite instrument of choice and McKready's photos convinced me that I certainly must have one.

The early 1950s were also the glory days of the Unitron Company on Milk Street in Boston. I set my heart on a 2.4-inch equatorial refractor priced at $240. Dad let me hire out to a farmer who would give me $200 for 60 days of summer work. I extracted promises from my four siblings to contribute $10 each and Dad agreed to pay the freight charges. Three weeks later the world as I knew it ended and a new one began—a world in which I had a telescope with a proper mounting! This small, but fine instrument served me for many decades until aperture fever began to afflict me in the 1970s. It was the momentous decade when my astronomical youth came to an end, for it was then that I built the 10-inch reflector, learned about the workings of the AAVSO, and joined an exciting new astronomy club in Rhode Island.

Bob Howe with his home-built 8-inch Dobsonian telescope.

Member Profile: Robert Howe

How I Became an Amateur Astronomer

Well, Let Me See—

I guess it all started when I was 8 or 9 years old. Once again, November arrived and, at this time, the frostfish also arrived on the sandy shores of upper Narragansett Bay. These are Whiting, normally about 12 inches long; they chase shiners along the beaches and are very tasty! One needed a pair of boots, a sharp spear and a light of some sort. On a clear, calm and cool night we were usually successful.

Now, shoreline fish after dark also meant a sky full of stars! I, with my Dad, plied the still waters in the early evenings but, the sky above beckoned. In the mid 1940s we were under wartime blackout conditions and it was truly dark!

I never asked my Dad how he came to know the sky and, much later, I realized his knowledge was sketchy at best but, for then, he was my mentor. He knew Cygnus, Ursa Major and Orion. I was amazed at the ease of how to find the North Star.

I remember at one of my Cub Scout outings I was the only one who could find nighttime North! I know I missed a lot of fish because I spent a lot of time looking up!

At nine years old I received my own boots (size 9). My feet swam in them, and sometimes literally, as often the fish were out too deep and I flooded over the top.

The next summer, I attended a camp in New Hampshire and, for the first time, looked through a telescope at the Moon. I've never forgotten that experience and, often hope that the youngsters we entertain at our observing sessions might also be moved to an interest in the heavens.

In the years to follow, at camp in NH and Scout Camp, I won several astronomy prizes and my Astronomy Merit Badge. But, as often

happens, the pre teen and high school years showed me other things that occupied my attention. Oh, there were those times when a glance upwards still showed that which I had always seen before, still there. There was a partial solar eclipse in the late 1940s and Dad helped me make a pinhole box—not impressed!

High school and college flew by and I found my self aboard a Navy ship heading for Florida. There was a bright and large comet in the sky that I couldn't get enough of (March 1956). With the very dark ocean sky, the comet and stars together was a wonderful sight.

After several more years—marriage, children and other priorities—I slowly got back to looking up more often and needed to get reacquainted since my children were now entering scouts and we always did 'sky stuff' at our overnights.

I found a totally clapped out 4-inch reflector in a junk pile, fixed it up, somehow got it collimated and was off and running. When I saw the Orion Nebula for the first time I was completely hooked.

In the 1960s, my Dad was taking courses at Brown with Dr. Smiley and he started getting *Sky & Telescope*. Which I poured over immediately and grabbed the sky chart to work with. That took some getting used to as there was a huge difference in scale from chart to sky!

After many frustrating months in my yard dodging trees and a huge lacking in my expertise, I joined Skyscrapers in 1987 or '88,—And as is often stated, That's a whole 'nuther' story!

Member Profile: Steve Hubbard

My Life as an Amateur Astronomer

When I was younger, I received a telescope for Christmas one year. It had to be sometime in the early to mid 1960s and had a long white tube, a wooden tripod and nice wooden box. It was a 60mm Tasco refractor.

I distinctly remember the excitement of seeing the box with the scope inside of it, with all its eyepieces and associated stuff and then it somehow promptly disappeared from my life and memory for the next ten years or so. I never used it, nor did I do any skywatching with it, binoculars or even my eyes. I do remember being fascinated with the space program and avidly watching as many of the launches of various missions as I could, but going out to see some of the places that we all dreamed the astronauts would someday go, just wasn't in the cards at that time.

Flash forward about ten years to my sophomore year of high school. I was walking down one of the corridors in school one day, and bumped into a friend. He told me about an astronomy club at the school and how there was a meeting that afternoon of the group being run by the physics teacher. Something about this must have caught my attention, because I showed up for that meeting and found myself unexpectedly immersed in nerd heaven. Here were others just like me, pale, pasty, unathletic and terribly interested in the sky. It was like a door had just been unlocked.

Shortly after discovering and joining the club, I got to attend my first observing session. We went to a local elementary school and set up in the yard in back. In those days, you could actually do something

Steve Hubbard at the Crooked Creek Research Station during the 2004 White Mountain trip. Photo by Dan Lorraine.

like this and not have blinding, poorly pointed security lights spoil the view. After a ten year hiatus, my old Tasco refractor finally got to see first light. I was part of a crew that had a couple of pairs of binoculars, another small refractor and best of all, one of the members had a 6-inch Criterion reflector. It was hugely impressive at the time and I was hooked. I don't remember what I saw through my scope those first few times, but I do have distinct memories of not being able to find much at first. I didn't know the constellations and couldn't find anything other than the brightest objects.

Not long after this, I found out about *Sky & Telescope* magazine. I used the star charts in the middle of it to slowly and painfully work my way around the sky, starting from the Big Dipper out. Gradually I got a basic working knowledge of much of the sky and started working towards a goal that I had set. I desperately wanted to see the globular cluster, M13. I had seen a picture of it and a description somewhere, either in *Sky & Telescope* or in a book I found in my parent's library, *The Fascinating World of Astronomy* by Robert S. Richardson, which I still have

to this day. For whatever reason, I was just fascinated by the thought of M13 and no matter how, had to find it for myself and see it with my little telescope.

Eventually, the time came and one night, I finally managed to locate the keystone in Hercules and then… there it was, M13! Small, but bright against an inky black background, I could just barely start to resolve some of its individual stars. As jaded as I've become over the years after seeing it resolved to the core many times in much larger scopes, nothing can take away from the thrill of finding and seeing it for the first time.

Time went on, the little Tasco eventually fell by the wayside in favor of an 8-inch Criterion reflector that I got a year or so later and then larger and ever more different scopes seemed to keep coming and leaving. Over time, I went through an 8-inch Cave Cassegrain, then a 10-inch, a 6-inch Jaegers refractor, then a 4-inch and eventually a 16-inch reflector, which has been the only one that I've consistently kept. As to how I discovered the Skyscrapers, one of the members of my high school astronomy club, had an uncle who was a member of a club in the then far off state of Rhode Island. In case you haven't guessed, the club was the Skyscrapers and the uncle was John Bacon, some of you reading this will perhaps remember him. Until that time, I had no idea that such a thing as astronomy clubs even existed. My first visit to North Scituate was in 1972. I was hooked. For a teenager, the old antique Clark refractor, the clubhouse and the observatory building were irresistible. There was even a real, legitimate outhouse in the woods on the grounds! I became a member and have spent a large part of both my remaining teenage years and my adult life at the grounds with friends that I have now known for over 30 years.

For me, the discovery of my love of astronomy has opened me to a fantastic world of incredible sights, travel to far off places and the ability to meet people who's fame will fade long after that of the so called "stars" of today's world.

So what do I remember from the past 30+ years as an amateur? Well, there was the incredibly bright comet West in 1976 with its blue green tail and bright coma. There was the time that a group of us went to Brown University to see Stephen Hawking speak. I will never forget the thrill of seeing the great man roll by my seat down the aisle, just a couple of feet away from me.

Another great memory was the trip a group of us took to Canada in 1979 to see a total eclipse of the sun. I have gotten to meet the discoverer of Pluto, Clyde Tombaugh, I have met the discoverer of the microwave background radiation, Robert Wilson.

I learned how to grind telescope mirrors thanks to the generous instructions of member Ed Turco. I received awards for the scopes I made at Stellafane.

There have been numerous meetings, AstroAssemblies, trips and other events, none of which would have happened without the existence of Skyscrapers.

As quickly as the past 30 years have flown by, I take comfort in knowing that Skyscrapers will be there and that there are lots more speakers, trips and huge amounts of food to look forward to.

John Kocur at Meteor Crater during the 2005 Flagstaff trip.

Member Profile: John Kocur

My Life as an Amateur Astronomer

I have always been fascinated by astronomy. Growing up in Douglas, Massachusetts, I remember when I was a little boy looking up at the night sky, it seemed like there were millions of stars above. In 1962, the skies were velvet black. Light pollution didn't exist at that time in my area. I was 6 years old then.

On February 20th, 1962, astronaut John Glenn became the first American to orbit the Earth. At that point, I became enthralled with outer space, rockets, stars, planets, and the possibility of extraterrestrial life. In 1967, I purchased a copy of *Know the Stars* by H.A. Rey. I absolutely loved that book and still have it today. I pointed my first pair of binoculars, with plastic lenses, at the brightest star I could find overhead and wondered if a boy on a planet around that star might be looking back at my solar system.

Well, 1969 rolls around and I was absolutely glued to the television watching live as Neil Armstrong and Buzz Aldrin landed on the Moon. I was thrilled to say the least. My brother and I had built a Saturn V model rocket. It stood over 3 feet tall. We learned about the different components and how they worked to help the astronauts accomplish their mission.

Later on, my interest in science grew through high school and college. My focus was on biology but I still had an interest in astronomy. While I was attending UMass, Amherst, I took a course in astronomy. I learned about types of stars, galaxies, nebulae, cosmology, and various other astronomical facts. The class was very enjoyable and interesting, but I didn't know where any of these fantastic deep sky astronomical objects were located. After graduating from UMass, my family and career took priority. Today, I am working as a Surgical Technician in the

Operating Room at a local hospital.

On Christmas, 1995, my wife gave me a pair of Tasco 7x35mm binoculars as a gift. The first object I looked at was the Moon. It was a beautiful sight, but quite familiar. Next I pointed it at Jupiter. I was astonished at what I saw. There was Jupiter with four moons around it, 2 on each side, in line with the planet. Wow, I didn't think a small pair of binoculars could resolve those moons!

Late March, 1996, comet Hyakutake appeared. I grabbed my binoculars and brought my daughter Lindsey, who was 9 years old at the time, out to the backyard. There it was, suspended overhead displaying a thin wispy tail. I held the binoculars for my daughter and helped her find the comet. "I see it, I see it!" she shouted, jumping up and down. I was so happy she was able to experience it. That was a moment I will never forget, our first comet. Talk about going full circle 29 years later, it's amazing. March, 1997, Comet Hale-Bopp arrived. It was a magnificent sight in the northern sky, a visitor that traveled billions of miles. I wished I had a telescope.

June, 1997, the astronomy bug bit again. One day as I was shopping, I passed a magazine rack and a copy of *Astronomy* magazine caught my eye. There, on the cover, was a picture of M104, the Sombrero Galaxy. I was hooked. Captivated by all the fantastic astrophotography, the endless variety of scopes, and the idea that I could see a lot of these objects from my backyard, I needed to know more. I decided I was going to learn the sky with binoculars. Upgrading to a pair of Nikon 10x50mm, I used an old Apple computer to log objects that I observed starting with M45, the Pleiades, then M42, the Orion Nebula and so on.

After studying the sky for a whole year, I decided to get my first real telescope. The Meade ETX90 spotting scope was my scope of choice. Since it was just an optical tube, no drive motors or computer, I was forced to locate objects manually using star charts. To this day I am so glad I took that route. This gave me a real understanding of the night sky which allows me to point out objects to people with ease. In 1999 I started attending star parties beginning with the Connecticut Star Party, CSP9. I learned so much and met many wonderful people at these parties.

Since the astronomy bug has bitten me so many times, I started to develop a condition known as "aperture fever". The only cure was to build my own 8-inch f/6 reflecting telescope. I spent three months researching the internet, books, and magazines. With all the information I had gathered, I felt confident enough to begin construction in July of 2002. My new telescope saw first light on September 5, 2002, the day before CSP12. I was very pleased with the results. I was now able to search for DSO's, objects beyond the reach of my 90mm Maksutov.

Seeking more knowledge and interested in joining a local astronomy club, I became a member of The Skyscrapers in 2003. The Skyscrapers is the best amateur astronomy club in all of New England. The members are the reason why it's the best. I feel welcome and look forward to each and every meeting. The guest speakers at the meetings are top-notch and AstroAssembly is a wonderful event, not to be missed. The trips to White Mountain, California and Arizona were outstanding. I would have never made those trips on my own. They were experiences

of a lifetime. All this is possible because of the hard working, dedicated officers and members of this fine organization. The friends I have made at The Skyscrapers and star parties will always be close to my heart.

So what's in store for the future? More trips, more star parties, and astrophotography, of course. In 2006 my telescope will be computer controlled which will allow me to take long exposure wide field and deep sky shots. The challenges of digital imaging and processing will keep me busy. And as always, I want to share my knowledge and experience with fellow amateur astronomers, and learn from them as well. That's what being a member of an astronomy club is all about. The sky's the limit. Stay tuned.

Bill Gucfa with his 4¼-inch Astroscan reflector.

Member Profile: Bill Gucfa

How I Became an Amateur Astronomer

I don't remember becoming an amateur astronomer. In all my time on this planet, I haven't one memory of not appreciating the night sky; or the daytime sky for that matter. When does one cross the line from every day citizen to that strange creature who must venture into the night looking for who-knows-what, behind a star?

The term amateur astronomer to me suggests one who studies the sky without that study being financially sustaining. This hasn't always

been true for me in my celestial adventure through life, as I did have a column in *The Providence Journal* titled The Sky for years. At that time, it was a matter survival. I was a poor freelance journalist. The sky, I hate to admit, was my bread and butter. When I found out it could earn me a partial living, I was even more appreciative. There was also a strange need to try and draw others into my mad avocation! However, it wasn't always like this. There was a simpler, less desperate time.

Remembering back to when I was a child, the night itself held a great fascination to my young senses. I found I loved the dark. It felt protective, a safe haven.

Living on the top floor of a three story tenement afforded me views of the sky in all four directions. The Moon especially caught my attention. As it rose in the east in its full phase, I would turn out the lights in my living room and watch the beam of lunar light slowly move across the walls and eventually onto the floor where I would lay, accepting of this odd silent friend outside my window. It didn't really matter to me what the Moon was. Its light was strangely soothing. I would even play with my toys on the floor, in the moonlight!

Facing southward, or what I know now as southward, I would sit and watch the Moon and stars travel across the sky during the magical night.

One of my most vivid dreams at this tender age is the brightest stars in that southward sky (probably the Orion, Canis Major area) actually coming down to my window, entering, and floating around the room! Just beautiful points of light, alighting like snowflakes.

In the waking hours, I would place a piece of a broken mirror on the window sill to reflect those stars trying to replicate my dream experience.

I think these very early feelings were the foundation of my life-long love of astronomy.

Another very special influence in becoming an astronomer was my dear mother. She too had a special affinity for the firmament and all of nature. Nature was, although she never actually said it, her religion. As I once revealed in a personal epitaph placed in the local newspaper on one anniversary of her passing: She loved the Moon, the storms, and the twinkling summer stars.

One night, she took me out on the back porch, to the north facing side of our venerable three-decker and pointed to the sky. There, a curtain of flowing color and beams of light silently undulated. I stood mesmerized as my mom explained they were the northern lights. She had once stood under them with her mother who told her they were caused by the reflection of sunlight off icebergs in the North Pole! Wow! My mind raced at six years old! That vision stuck with me for many years and many auroras. From that night on I wanted to learn more about this realm that held so much beauty. My mother knew everything about the sky I soon discovered. She showed me the Big Dipper and told me stories about the Milky Way.

By the time I was twelve, she had bought me my first astronomy book, *The Sky Observers Guide*. I explained to her the real reason the aurora borealis occurs, and silently thanked her for implanting a vision

that encouraged me to want to keep learning more about it.

Soon after, she and my older sister chipped in their hard earned-in-the-mills money to buy me my first telescope for Christmas. I was on my astronomical way, never to look back!

Today, amateur astronomy gives me the pleasure of good friends and technical exercise for my non-technical brain.

Skyscrapers and Seagrave Observatory has embraced and influenced me from a young teenager in 1963, who could have easily turned into a street punk, to the person I am now.

I actually grew up with some of my fellow star gazers here at Seagrave. I'm sure they too would agree with me that we've had the best of astronomical times!

Tracey Haley with his daughters Meaghan (left) and Katherine (right).

Member Profile: Tracey Haley

My Life Under the Stars

My first memories of a star studded life, begin as a boy in the early 1970s. I came from a family of six and my father worked many hours to make ends meet. Unlike family vacations today, ours was the occasional family camping trip. The smells and tastes of roasted marshmallow smores still make my mouth water. The nights seem to always be crystal clear and the pinpoints of the stars sharp. There was no light pollution of a major city or nearby neighborhood. The nights were alive with creatures of the night, singing, croaking, and chirping. My favorite thing to do was to stay up late, wrapped up in a sleeping bag and look up at the pitch-black of night, or a luminous Moon. In an age when human

missions to the lunar surface were so frequent, my dreams of flight took off.

As I grew older and the family camping trips dwindled, I would spend many nights by a fire at the beaches with my high school friends, always looking up and wondering how far life would take us. I guess I have always looked to the skies to find an inner peace that few things afforded me. Later in my twenties when I started to realize the true challenges in life, a grand event had caught my attention.

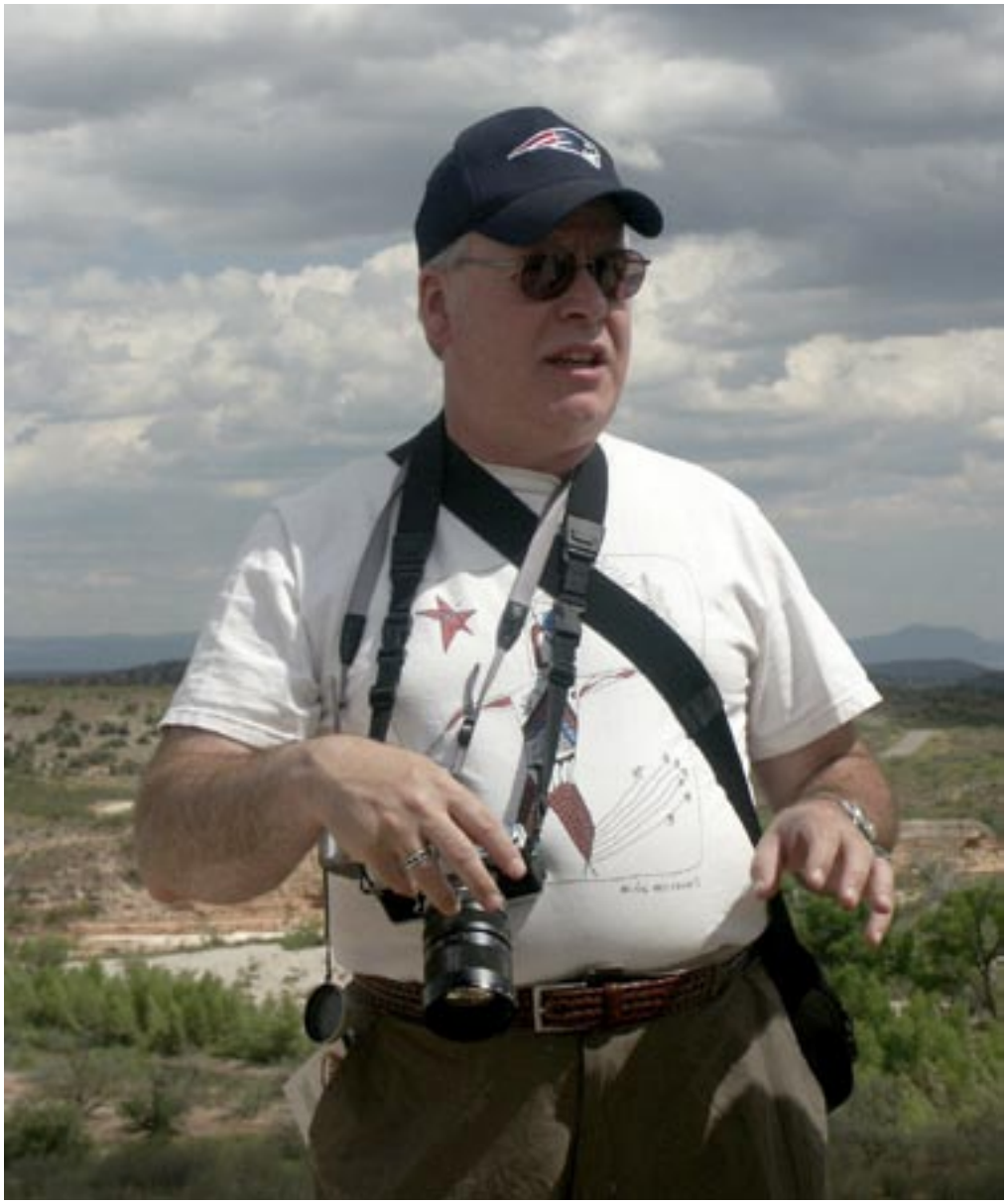
The year was 1993 and a comet had made headline news. This was no ordinary comet, but one that had ventured to close to the massive planet Jupiter. Being torn apart by the planet's deadly gravitational field, it was shredded into twenty-one segments. After its orbit was calculated and all bets were on the comet plowing into the very planet that had ripped it apart on its earlier obit. This comet was named Shoemaker-Levy 9 after its founders David Levy, and Eugene and Carolyn Shoemaker. In July 1994 the comet fragments one by one plowed into Jupiter, producing huge black spots. My first looks at these black spots were through the Ladd Observatory's 12-inch refractor. It was this event that changed me from occasional stargazer to amateur astronomer.

I first purchased a 60mm refractor which I was able to view the damage comet Shoemaker-Levy 9 had left behind. After about a year and a half of saving my money I purchased a Meade 8-inch f/6.3 Schmidt-Cassegrain telescope. I had the equipment now but was lacking something very important. With any interest or hobby, it is always best to have someone to share it with. My family and friends had only a look once and "that's nice" response at the eyepiece. I knew I had to find others who felt the same calling to the night sky as I had.

On a winter day in February I spent some time at the Cormack Planetarium learning about the night sky. Upon leaving the planetarium I found a registration form for The Skyscrapers Inc., Amateur Astronomical Society of Rhode Island. I had found what I needed, a whole group of people with my interests. I sent in my registration form, and at the next monthly meeting I became an official Skyscraper.

The next year was one of new friends, new learning, and feeling of pride. With my knowledge of astronomy expanding, so had my universe. With my new marriage and a newborn baby girl, I decided to put a hold on Skyscrapers and devote my time to my new family.

Five years and three beautiful children later, the time had come to rejoin Skyscrapers. I have been an active member now for a year and a half. I have met some great new friends and attended several fantastic lectures and events. I enjoy the company of friends who share my interests in astronomy and have also introduced my two oldest girls to what I hope turns into a lifetime interest in science. Thanks to Skyscrapers for having such a wonderful impact on my life.



When it comes to the archaeological sites of the American Southwest and their astronomical significance, Rick Lynch is our tour guide. Here he addresses the group at Tuzigoot National Monument during the 2005 Flagstaff trip. Photo by Jim Hendrickson.

Member Profile: Rick Lynch

Astronomy & Archaeology Intersect in the American Southwest

For the last two decades I have visited the Southwest United States on a regular basis for interests in astronomy and archaeology. The clear skies and open vistas were a great inspiration for astronomy. The rich cultural history of native peoples along with their reverence for the sky became evident as I visited many of the archaeological ruins located in the Four Corners area of the US.

Visiting and observing at various well-known observatories by night and sight seeing by day lead me to discover that many of the pueblo ruins were built with astronomical orientation in mind. These early pueblo people had ample time to observe the motions of the heavenly bodies. This was in essence their time calendar that they regulated their lives by. Windows oriented to cast light on marked beams opposite the opening told of the time of planting or harvesting, standing stones and shrines marked the longest and shortest day of the

year. They appeared everywhere! My reason for being in the Southwest was for astronomical observing but I had now developed a new daytime interest of archaeology!

After visiting dozens and dozens of well-known ruins and many only known to the archaeological community, I became hooked. The unique part of this new found interest was that the people who built these marvelous monuments were the ancestors of today's pueblo people. In many cases some of today's pueblo villages have been occupied since time immemorial. Acoma Pueblo in New Mexico and the Hopi Village of Walpi in Arizona are the oldest continuously inhabited settlements in North America, occupied prior to Columbus's "Discovery" of America!

As part of my explorations of this vast area of the US, I also discovered hundreds of sites where native people as well as early Spanish colonizers carved stories in stone. Rock art sites are everywhere in the Southwest, most recording long forgotten events or stories. Recent research in the last 30 years has shown that many of these rock art sites record what appear to be astronomical events, eclipses, supernova, constellations etc. I had found the place of my dreams! Everywhere I traveled there was astronomy in some form or another.

I knew that I had to put down some type of roots in this land. In 1986 I purchased 40 acres of land in the high desert at 8,000-foot elevation with exceptionally clear night time skies. Also located here are Anasazi ruins from about 1200 AD and the ruins of a Mormon homestead from the late 1800s. I now had possession of everything that interested me about the Southwest.

All my life I have felt a need to document everything I see and experience. Notes and drawings were important to my hobby of astronomy since I was 8 years old when my first interest in astronomy began. I still have all of these notes to this day! As I grew older I discovered photography and was able to afford my first "good" piece of equipment in 1966 just in time for the Leonids meteor shower. This is an interesting date as the first Skyscraper trip to the Southwest I organized was 33 years later for the return of Comet Tempel's passage through the Earth's orbit!

In my many 41 years as a Skyscraper member I have always met people in the society with a keen interest in many things in addition to their passion for astronomy. I found a ready audience for my photos and stories of the Southwest. I have traveled extensively over the years with many of the members I grew up with in Skyscrapers to many astronomical research facilities. Dave Huestis, Steve and Kathy Siok, Alan Hall and Steve Hubbard are those that have been with me to many places. In more recent times Dan Lorraine has been "hooked" on the Southwest and has also visited many of the most notable sites with me.

List of Speakers

This list of speakers is compiled from meeting minutes, meeting notices, and *The Skyscraper* newsletter. The reader will notice gaps in the list. Many meeting minutes prior to the printing of our newsletter are missing. I hope this information comes to light sometime in the future.

1932 Leon Campbell, Rev. John G. Crawford, John Euart, Dr. Harry Koopman, Dr. Peck, Charles Hugh Smiley, Dr. W. H. Stevenson

1933 Professor Leah B. Allen, Professor Robert M. Brown, Professor John Duncan, Dr. Clyde Fisher, Franklin Huddy, Dr. Harry Koopman, Cecilia Payne, John Pierce, Frank Seagrave, Mrs. Charles Smiley, Howard Tibbetts

1934 Professor Leah B. Allen, Miss Maribelle Cormack, Paul Eberhart, Ernest Hager, Franklin Huddy, Angeline M. Pettey, Professor Frederick Slocum, Charles Hugh Smiley, Chester Stiles, Dr. Fred Whipple

1935 Victoria Atwell, Paul Eberhart, Dr. A. B. Focke, Frederick Hoffman, Franklin Huddy, Professor Lunt, Harry MacKnight, R. Newton Mayall, Dr. W. V. McGilvra, Donald S. Reed, Dr. Harlow Shapley

1936 John Euart, Ernest Hager, Frederick Hoffman, Franklin Huddy, Dr. Harry Koopman, Mr. Matteson, Francis Middleswart, Philip Newmarker, Della Patch, Donald Prentice, Donald S. Reed, Charles Hugh Smiley, James Stokley, Professor Anne S. Young

1940 Dr. Victor A. Goedicke, Dr. Richard Goldthwaite, Arthur Hoag, Frederick Hoffman, Angeline M. Pettey, Charles Hugh Smiley

1941 Professor Leah B. Allen, Dr. Bart Bok, Jean Bonjour, Charles A. Federer, William J. Gardner, Dr. Arthur M. Harding, Frederick Hoffman, Helen Holmes, Albert E. Lownes, Philip Newmarker, Ralph Patton, Mary Quirk, Professor Frederick Slocum, Charles Hugh Smiley, Dr. Harlan Stetson

1942 Dr. Cecilia Payne Gaposchkin, J. Malcon Good, Dr. Harlow Shapley, Charles Hugh Smiley, Mrs. Byron N. H. Smith

1945 Stanley Landeen, Charles Hugh Smiley

1946 Dr. George Dimitroff, Donald S. Reed, Charles Hugh Smiley, John Streeter, Dr. Fred Whipple

1947 Miss Maribelle Cormack, William Green, Charles Hugh Smiley

1950 Dr. John G. Albright, R. Newton Mayall, Frank Morrissey, Mrs. Frank Morrissey, Frank Morrissey, Dr. Arthur L. Quirk, Charles Hugh Smiley

1951 Robert Coles, Miss Maribelle Cormack, Dr. Charles Hetzler, Elmer Hornby, Professor Miller, Frank Morrissey, Wilhelmina Null, Donald S. Reed, Charles Hugh Smiley, Admiral Umsted, Clinton Williams

1952 Ernest Hager, Dr. Charles Hetzler, C. Bird Keach, Philip Newmarker, Wilhelmina Null, Admiral Umsted

1953 Clifford Brown, Miss Maribelle Cormack, Roy Moone, Philip Newmarker, Professor William Penhallow, John Royal, Clinton Williams

1954 Clifford Brown, Captain Frederick W. Laing, Harriet Laird, Dr. Stephen P. Mizwa, Wilhelmina Null, Ralph Patton, Charles Hugh Smiley

1959 Harry Bondy, Ralph Carlson, Miss Maribelle Cormack, Captain Jay A. Davidson, Rev. Philip Kierstead, Wayne C. Lovell, Donald S. Reed, Charles Hugh Smiley

1960 Miss Maribelle Cormack, Arthur Crowe, Professor Charles R. Hammond, Margaret Harwood, Dr. Curtis Hemenway, Dr. Renato Leonelli, Roy L. Moone, Frank Morrissey, Edwin Stevens, Raymond N. Watts

1961 Robert A. Brown, James W. Dodge, Dr. William H. Pinson Jr., Charles Hugh Smiley

1965 Dave Armitage, Clifford Brown, Miss Maribelle Cormack, Allen Shepperton, Charles Hugh Smiley

1966 Dave Armitage, Dr. Charles Hetzler, Mr. Partington, Professor William Penhallow, Allen Shepperton, Ed Turco, Raymond N. Watts

1967 John Hopf, Dr. Robert Schwartz

1968 Rev. Kenneth Allard, Repair Day, John Hopf, George Keene, Rev. Philip Kierstead, Professor William Penhallow, Dr. John Ruiz, Ed Turco, Raymond N. Watts

1969 Clifford Brown, Miss Maribelle Cormack, Richard H. Davis, David Dixon, Margaret Jacoby, Rick Lynch, Neil Paulhus, Professor William Penhallow, Donald S. Reed, William Shawcross, Charles Hugh Smiley

1970 Dave Armitage, Richard Austin Jr., John Bacon, Patrick Clayton, Professor Hubert Harber, Henry H. Harkins, John Hopf, Rick Lynch, Professor William Penhallow, Allen Shepperton, Charles Hugh Smiley, Dr. Wilton Sturges, Ed Turco

1971 John Bacon, Dr. J. Morton Briggs, Professor Hendrik Gerritson, Gary Hitchcock, Margaret Jacoby, Rev. Philip Kierstead, Dr. Richard McCrosky, Professor William Penhallow, Donald S. Reed, Charles Hugh Smiley, Ed Turco

1972 Dave Armitage, Mr. Raymond Arvidson, Professor Miner Brotherton, Alan Goldberg, Professor Charles R. Hammond, Margaret Jacoby, Mark Keene, Roger Menard, Neil Paulhus, Professor Philip Stiles, Steven Wentworth

1973 John Bacon, Dr. Richard Gehrenbeck, Rick Lynch, Allen Shepperton, Steven Wentworth

1974 Dave Armitage, John Bacon, Dennis Haworth, Dan Lorraine, Rick Lynch, Mike Passano, Neil Paulhus, Donald Trewargy

1975 John Bacon, George East, J. Gettys, Alan Goldberg, Jim Lalime, Dan Lorraine, Rick Lynch, Michael Lynch, Rick Lynch, Mike Passano, Ed Robinson, Steve Siok, Donald R. Todd, Ed Turco

1976 George East, Dick St. Germain, Dave Huestis, Rick Lynch, Michael Lynch, Brian Magaw, Michael Mendillo, E. Talmage Mentall, Ed Robinson, Ed Turco, George Young

1977 Dennis di Cicco, John Ghiorse, Dave Huestis, Eric Jones, Brian Magaw, Dr. Janet Mattei, Dr. M. L. Meeks, Professor Tom Mutch, Ed O'Donnell, Professor William Penhallow, Kathy Siok, Steve Siok, Norm Sperling, Ed Turco

1978 George East, James English, Ronald Harger, Dave Huestis, David Iadevaia, Margaret Jacoby, Gerry Lafontaine, Michael Lynch, Rick Lynch, Brian Magaw, Professor William Penhallow, Jack Pinkham, Steve Siok, Kathy Siok, Dr. Larry Smarr, Norm Sperling, Ed Turco

1979 Philip Atwood, J. Kelly Beatty, Peter Collins, Dave Huestis, Kerry Hurd, Francine Jackson, Art Lee, Rick Lynch, Brian Magaw, Dr. Richard McCrosky, Dr. Frederick Seward, Norm Sperling, Professor Arthur Upgren

1980 Dennis di Cicco, Phil Dombroski, George East, Bob Eaton, Dr. Richard Gehrenbeck, Ken Gilbert, Dr. Dorrit Hoffleit, John Hopf, Bob Horton, Dave Huestis, Dr. Randolf Levine, Rick Lynch, Brian Magaw, Norm Sperling, Dr. Fred Whipple

1981 John Briggs, Phil Dombroski, Gerry Dyck, George East, Bob Eaton, Dr. Fred Franklin, Wendy Hale, Steve Hubbard, Dave Huestis, Rick Lynch, Charles Morris, Bob Napier, Steven O'Meara, Al Porter, Kathy Siok, Steve Siok, Norm Sperling, Dr. Barbara Welther

1982 Dr. Stephen Barshay, Dennis di Cicco, George East, Bob Eaton, James English, Dr. James Head III, Kerry Hurd, Rick Lynch, Mike Mattei, Bob McGwier, Charles Morris, William Shawcross, Paul Valelli, Dr. John Wood

1983 Julius Benton, John Briggs, James Cornell, Phil Dombroski, Gerry Dyck, George East, James Garvin, John Hopf, David H. Levy, Rick Lynch, Bob McGwier, Bob Napier, Chuck O'Connell, Leif Robinson, Dr. James Tattersall

1984 Julius Benton, Jack Borden, Byron Dix, Gerry Dyck, Dr. Jess Eichenlaub, James Garvin, Walter Scott Houston, Dave Huestis, Rick Lynch, Brian Magaw, James Mavor Jr., Bob McGwire, Tina Pala, William Shawcross, Dr. Barbara Welther

1985 Max ben Aaron, Jack Borden, Phil Dombroski, Gerry Dyck, Bill Gucfa, Dr. Alan Hirshfeld, John Hopf, Dave Huestis, Fred Knight, Dr. Leonard Lesko, Brian Magaw, Bob Napier, Dr. Carle Pieters, William Shawcross, John Silva, Steve Siok

1986 J. Kelly Beatty, Earl Benton, Dennis di Cicco, Gerry Dyck, John Hopf, Walter Scott Houston, Dr. Janet Mattei, Charlie McFadden, Dr. Chet Raymo, Lou Richardson, Dr. Peter Schultz, Woody Spring, Dr. Fred Whipple

1987 John Briggs, Glenn Chaple, Dr. Larry Crumpler, Gerry Dyck, Bill Gucfa, Evan Haddingham, Walter Scott Houston, Steve Hubbard, Alan MacRobert, Brian Magaw, Helga Magrath, Dr. Bernie McNamara, Patrick Morrissey, Steven O'Meara, Professor William Penhallow, Dr. Chet Raymo, Greg Shanos, Dr. Clyde W. Tombaugh, Shawn Whitney

1988 Jayne Aubele, Dan Britt, Gerry Dyck, Ron Farrell, Professor Hendrik Gerritson, Dr. Owen Gingerich, John Griese III, Walter Scott Houston, Todd Kozikowski, Charlie Lord, Bill Luzader, Mike Mattei, Dr. Philip Morrison, Bob Napier, Greg Shanos, Mike Umbricht, Joe Zajac

1989 Dr. Robert Brandenburger, Dr. Joseph Caruso, Glenn Chaple, John Dobson, Gerry Dyck, Dr. Owen Gingerich, John Grant, Bill Gucfa, John Hopf, Steve Hubbard, Dave Huestis, Dan Lorraine, Brian Magaw, Patrick Morrissey, Dr. Mario Motta, Dr. Ronald Schorn, Greg Shanos, Steve Siok, Dr. Ellsworth Starring, Scott Tracy, Dr. Barbara Welther

1990 J. Kelly Beatty, Byron Dix, Gerry Dyck, Edwin K. Gora, John Griese III, Dave Huestis, Dr. John Imbrie, Peter Kandefer, Rick Lynch, Brian Magaw, James Mavor Jr., Professor William Penhallow, Dr. Peter Schultz, Greg Shanos, Steve Siok

1991 Glenn Chaple, Ed Dougherty, John Griese III, Peter Kandefer, Gary Ley, Bill Luzader, Joseph Rao, Dr. Peter Schultz, Roger Sinnott, Steve Siok, Firehawk & Blue Sky, Mike Umbricht

1992 Simon Bandler, Dennis di Cicco, Gerry Dyck, Dr. Richard Gehrenbeck, Debra Glavin, Bill Gucfa, Dave Huestis, Peter Kandefer, Al Nagler, Bob Napier, Steven O'Meara, Professor William Penhallow, Leif Robinson, Richard Sanderson, Dr. Peter Schultz, Brian Skiff, Peter Vancura, Wilmer Vargas

1993 Dr. Alexander Tikhonovich Basilevsky, Richard Berry, Tony Constanza, Roger Forsythe, Martin Goetz, Brian Grino, Bob Howe, Dave Huestis, Professor William Penhallow, Karen Salvatore, Steve Siok, Mike Umbricht, Gary Walker

1994 Andrew Chaikin, Ed Couture, Richard Didick, Roger Forsythe, Bill Gucfa, Dr. James Head III, Steven O'Meara, Steve Peilok, Dr. Peter Schultz, Kathy Siok, Mike Skratskie, Mike Tudino, James Ullom

1995 J. Kelly Beatty, Conrad Cardano, Russ Chaplis, Richard Didick, Martin Goetz, Stuart Goldman, Daniel Green, Phil Harrington, Bob Horton, Mike Mattei, Dr. Mario Motta, Bob Napier, Mike Staid, Mike Umbricht, Shawn Whitney

1996 Dr. Arak Bozyan, Craig Cortis, Gerry Dyck, Phil Harrington, Mathew Marulla, Alan McRobert, Jack Megas, Professor William Penhallow, Richard Sanderson, Dr. Anurag Shankar, Mike Umbricht

1997 Professor Timothy Barker, Dr. Robert Brandenberger, James Curry, Gerry Dyck, John Hopf, Rick Lynch, Robert Pappalardo, Professor William Penhallow, Dr. Peter Schultz, Bob Summerfield, Professor Arthur Upgren, Dr. Fred Whipple

1998 Conrad Cardano, Dr. Cathy Clemens, Bob Crelin, Ron Dantowitz, Martin Gotz, Bob Horton, Sergei Khrushchev, Rick Lynch, Professor Pingree, Mike Umbricht

1999 Craig Cortis, Gerry Dyck, Fred Ewalt, Lew Gramer, Bob Horton, Dan Lorraine, Mike Mattei, Eric Pauer, Carolyn Collins Peterson, Amy Shuman, Robert Stefanik

2000 Dave Gallup, Dave Huestis, Dave Hurdis, Dan Lorraine, Dr. Janet Mattei, Jack Megas, Robert Pappalardo, Aaron Price, Dr. Eric Schlegel, Steve Siok, Scott Tracy, Professor Greg Tucker, Jim Zebrowski, Joe Zuraw

2001 Dr. Ian Dell'Antonio, Fred Ewalt, Dr. Robert Gendler, Andrew Howard, Steve Hubbard, Brian Lula, Rick Lynch, Bob Napier, Richard Sanderson, Steve Siok, Clay Taylor, Ed Turco

2002 Professor Timothy Barker, Dr. Shawn Carlson, Andrew Chaikin, Kathryn Fishbaugh, Evan Haddingham, Al Hall, Dr. James Head III, Alan Hill, Bob Horton, Steve Hubbard, Peter Kandefer, Dr. Larry Marschall, Professor William Penhallow, Hank Renaud, Dr. Peter Schultz

2003 Dr. Peter Boyce, Walter Carroll, Dennis di Cicco, Tom Dobbins, Lisa Glukhovsky, Professor William Herbst, Dave Hurdis, Rick Lynch, Ann Maggs, Dr. Mannheim, Dr. Brian Marsden, Greg Mort, Dr. John Mustard, Dr. Peter Schultz, Fred Surowiec, Richard Trombley

2004 Dr. Wendy Bauer, Matt BenDaniel, Dr. Edward Deveney, Dennis di Cicco, Dr. Robert Gendler, Dr. Owen Gingerich, Al Hall, Dr. Alan Hirshfeld, Dr. John Huchra, Peter Lee, Dr. James Lowenthal, Mathew Marulla, Tony Misch, Robert Naeye, Rich Nugent, Brad Thompson, Ed Ting, Gary Walker, Anatoly Zak

2005 John Allseits, Dr. Martina Arndt, Dr. Marcia Bartusiak, Dr. Richard Binzel, Dr. Peter Boyce, John Briggs, Glenn Chaple, Howard Chun, Dr. Ian Dell'Antonio, Dr. Martha Hanner, Dr. James Head III, Dave Huestis, Story Musgrave, Carolyn Collins Peterson, Mark Collins Peterson, Anthony Pirera, William Sheehan, Dr. Barbara Welther, Dr. Robert Wilson

2006 Jim Bell, Dr. Steven D'Hondt, Ron Dantowitz, Dr. John Delano, Dr. Ian Dell'Antonio, Dr. Steven Dubowsky, Gerry Dyck, Clara Eberhardy, Carolyn Ernst, Dr. George Greenstein, Bob Horton, John Kocur, Rick Lynch, Dr. Miguel Morales, Dr. Mario Motta, Dr. Ron Remillard, Dr. Michael D. Stage, Dr. William Sullivan, Dr. Sydney Wolff, Dr. Scott Wolk

2007 Noah Petro, F. Peter Schloerb, Dr. Steve Schneider, Dr. Darby Dyar, Gerry Dyck, Professor William Penhallow

Short Stories & Anecdotes

Observing Meteors May Be Hazardous To Your Health

This John Euart story was presented to Dave Huestis by John's daughter Kathryn

Now, who would agree with a statement like that? After all, what could be more rewarding or relaxing than selecting a favorite chair or chaise and going out on a warm summer's night to look for "shooting stars" and perhaps seeing a fireball or two. Well, listen to my story.

At the August 1932 meeting the Skyscrapers were looking forward to the total eclipse of the sun in New England on August 31st. Professor Smiley was leading a group from Brown University to a location in southern Maine. Several Skyscrapers were going to assist in making observations. Franklin Snow Huddy, a new member who eventually was elected president, was an expert amateur radio operator with excellent equipment. He was going to receive time signals by short wave direct from Washington, D.C. During the course of the meeting Professor Smiley remarked that a meteor shower called the Perseids would be visible in mid-August and suggested that the members might like to observe them, taking half-hourly counts of the number seen. My father and I decided that was what we would do.

We left our houses in Providence about midnight, drove to the top of Neutaconkanet Hill in western Providence, parked the car on the exit road and walked out to a knoll overlooking the city with a good view of the sky. We started our count at 1:00am and ended at 3:30am. We saw 110 meteors. In the last hour from 2:30 to 3:30 we were seeing on average a meteor a minute. It was interesting to see them gradually from east to west as the Earth rotated. The problem was that as the night wore on it got colder and colder. We were wearing business suits and warm cloth topcoats but we finally had to go to the car and stuff newspapers up our backs to get some measure of warmth.

At the September meeting there was much discussion about the eclipse which was wiped out by an errant cloud seconds before totality. It was so close that a person down at the edge of the meadow where the viewing site was located would have seen totality. I know because I was there. I should have stayed in Portland. President Crawford asked if any members had observed the Perseids. One member reported seeing one meteor. Another member reported seeing one meteor. When I arose and gave our report they were flabbergasted. I was asked to give a talk on meteors which I did. Maribelle Cormack invited me to talk at the Roger Williams Park Museum. Walter Wakefield of Worcester, Massachusetts invited me up there. My brother and I went there by jitney on a snowy night. There were few cars on the road that night.

Franklin Huddy became interested in meteors and wanted to photograph a meteor trail with his German Leica camera. His father owned a summer estate on Absoloma Hill east of Chepachet. So one night Franklin and his wife, my father and I drove out to the estate. I was using an old portrait camera with cut film. We did not succeed in catching any meteor trails but Franklin's star trails of Orion were excellent. I think the shower was the Orionids.

Comet Cunningham public viewing event at Seagrave Memorial Observatory

The interest in comets recently reminded me of the time in 1940 when Comet Cunningham made its appearance. Someone in Skyscrapers innocently invited the public to view it through the Seagrave telescope on New Year's Day. The notice gave a possible viewing time of 45 minutes starting at 5:00pm.

January 1, 1941 was a beautiful day, moderate temperature with a clear blue sky. There was very little if any snow on the ground. It was just the kind of day to take a ride and end up seeing a comet.

My father and I left our house in Providence early enough to observe the comet which was low in the west. When I turned into Peep Toad Road I was amazed at the number of cars. I remarked to my father that someone must be having a big New Year's Day party. Someone was: Skyscrapers.

I stopped our car to talk to the State Trooper on duty, identified myself as a Skyscraper, and showed him my key to the observatory. He found us a place to park and my father and I walked past the long line of interested observers. When we reached the head of the line the people waiting told us to go back to the end of the line. I said "If I do you won't get in because I have the key." That brought a laugh. I asked them to wait until I had prepared the observatory.

I opened the dome, placed the big ladder in position and brought the telescope around. Don Reed and his wife Connie had now arrived and after the telescope was focused we let them in single file through the meeting room to the stairs and into the dome. They were asked to take only a quick look as we had so many to accommodate in a short time. They were very orderly, very cooperative, and very appreciative. Phil Newmarker had come in and he made it enjoyable for all of us.

— John L. Euart

It was cold that night. We drove home at dawn. Franklin confided in me at our next meeting that while driving home he had almost fallen asleep at the wheel. He thought it was caused by fumes from a faulty exhaust system.

We tried again to photograph meteor trails. Harry MacKnight who later became President of Skyscrapers joined us. Another shower came along and Franklin wanted to meet us out at Absoloma Hill. We left our house about 11:30, drove out the road to the estate but found the entrance closed by a heavy chain between two stone posts. We parked the car at the side of the road to wait for Franklin. Before long we heard shouts from a house several hundred feet up the road on the opposite side. A dog was barking and lights were on. We put our dome light on to show we meant no harm. After waiting a while and having some coffee we decided Franklin was a no show and drove off. When I next saw him he apologized for not coming. I told him about the disturbance at the house up the road. He said that was the caretaker and he had orders to shoot first and ask questions afterward. Rather disconcerting news.

Later my father and I began plotting location, duration and time of viewing meteor trails. This was done to the second on charts furnished to us by the President of the American Meteor Society. He was successful in plotting the heights of two meteors using our observations and those furnished by a man in upper New York state. It is interesting to note that the over one hundred meteor count and the height observation mentioned in *A Quarter Century of Skyscraping* were never credited to us.

On the occasion of another shower my father and I decided to observe in our own backyard. The Milky Way could be seen overhead in Providence in those days. We were busily engaged in observing when I thought I saw movement on the property next door. I stooped to silhouette the area against the dim background lighting and sure enough there was someone on the property wearing what appeared to be a hat with a visor on it. The figure slowly approached and I said in a low voice to my father "We have company." The figure halted at the fence separating the properties and a voice with a rich brogue asked "What's up?" I answered brightly, "We're observing meteors officer" for indeed it was one of Providence's finest. He replied "What's them?" I invited him over to have a look. He vaulted the fence and I showed him what we were doing. When I was done he said to me "You're lucky you didn't get shot." I thought that was an odd remark when I heard a sound behind me. I turned and here was his backup officer who had come through our property intending to head us off at the pass if we tried to escape. After they left we picked up our charts, folded the table and went in the house.

So to summarize, the first time we observed, as they say in Texas, "we like to froze," later we were almost involved in what could have been a serious automobile accident, and we were almost shot at on two different occasions. When Skyscrapers acquired Seagrave most observing was done on that pastoral, peaceful, protected private property, but you know I do not remember any shower as good as that first Perseid shower.

John L. Euart, one of Skyscrapers' founding members, was born on December 4, 1910 and died on April 14, 2003.

AstroAssembly 2041

Contributed by Dave Huestis, September 6, 1991

In the tradition of AstroAssembly, our successful format has remained unchanged throughout the years. Next month we celebrate almost 100 years of AstroAssembly on October 4 & 5. This is what we have in store for you.

On Friday evening, October 4, an informal field trip to the recently renovated Omnimax V at the Museum of Natural History at Roger Williams Park is planned. Guests will be treated to a CircleVision Holographic tour of the solar system called: Prelude to the Stars. The show starts at 7:30pm.

On Saturday morning, registration will take place and our infamous astronomical swap table will be in full swing. George East Jr. will reportedly have some of the original parts of the Hubble Space Telescope for sale. George will also be one of our afternoon speakers. More about that later.

The Trustees Grill this year will be catered by Chef Shawn Murphy. Shawn promises some specialty items this year including: Shrimp Scampi, Filet Mignon, Babyback Ribs, and Baked Alaska for dessert. Way to go Shawn!

Master of Ceremonies for our afternoon program will be Skyscraper president William Magaw. As I already mentioned, our featured afternoon speaker will be Dr. George East Jr. George you may remember won worldwide recognition for his redesign of the Hubble Space Telescope way back in 2025. While working at the Moonbase on his doctorate, George discovered an unknown substance in the crater Tycho. Its unique properties allowed George to replace both the primary and secondary mirrors with new elements. He personally installed them when Hubble was towed to the Moon for repairs. Since then George has retained possession of Hubble, since NASA gave up on it way back in the 1990s.

Following the evening banquet, Dr. Tristan Huestis of MIT will present a paper on the discovery of an ancient civilization on Mars. Though prohibited from returning any artifacts to the Earth by the Mars Embargo Act of 2026, Dr. Huestis did obtain some ancient Martian pottery from archaeologist and entrepreneur Richard Lynch. He hopes to have them here so we may examine them firsthand.

Like the old days, way back in the 1970s, 80s and 90s, we're going to revive the old tradition of showing movies following the evening speaker. On tap: 3001: A Space Reality, Terminator 22, and Star Trek: The Next, Next, Next, Next, Next Generation.

On Sunday morning Skyscrapers is pleased to announce a field trip to the recently completed Freedom Space Station. A tour of the Walter Scott Houston Memorial Observatory will be conducted by Chairman Dan Quayle, grandson of the late President. This telescope uses the only liquid optics system in existence… it can only work in Zero-G. We'll be able to view Comet Dyck-Levy as it passes within 1.3 million miles of the Earth.

We'll also tour the di Cicco Space Image Library, where a collection

of archaic acetate film images by Skyscraper Historian Bill Gucfa, shares a photo exhibit with the more recent Laser Imaging Telescope data and the old CCD images.

Finally, in the Space Station's recreation area, Skyscrapers will challenge the Freedom's crew to a match of Zero-G Buffo Ball.

How will we get there you might ask? By special arrangement, we will board a spaceplane shuttle at the Green Aerospace Port in Warwick. See directions in your brochure. On our 30-minute ride to orbit, we will honor two of our members who designed and built the prototype of this spaceplane way back in the 90s. The Bergemann/Siok Aerospace Co. was established in 1993 after the defense contractor they worked for closed shop due to world peace and its lack of diversification. Be it the pressure of the oceans depths or the vacuum of space, all you need are good welds Steve Siok was once heard to say.

Thank you for your attention… but wait…

Well, now it's time to hear from an old man who has seen many AstroAssembly's come and go. Please welcome 104-year-old Bob Howe for his AstroAssembly retrospective.

Close Encounter

Contributed by Dave Huestis

During the summer of 1997, Rick Lynch gave me a call to see if I would volunteer to help him host a group up at Seagrave Observatory. That group, MUFON (Mutual UFO Network), wished to use our meeting hall for one of their meetings. Rick had attended some of their meetings in the past and suggested they visit Seagrave. It would provide us with an opportunity to enlighten some of their group on the astronomical events that transpire in the sky. Especially the ones that often get misidentified as UFOs (normally meaning flying saucers or alien spacecraft).

Rick thought I could give a brief presentation on the history of Skyscrapers. In addition, he knew that back in the 70s I had investigated a few UFO sightings myself, and was well read on the topic. I wouldn't dismiss out-of-hand what some of the folks would possibly assert.

However, Rick wanted to let me know that several of the members of this local chapter of MUFON claimed to have had close encounters of the third kind. In other words, they believed they had been abducted by aliens. This fact wasn't an issue with me. I had met others who wholeheartedly asserted they too had been abducted.

Well, MUFON accepted Rick's invitation, and they eventually visited Seagrave. They had their meeting in our meeting hall, after which Rick and I gave our presentations. When we were finished, the group walked over to the Clark building to observe through the Clark refractor. A couple of women lagged behind, so I stayed back to guide them across the courtyard with my flashlight.

When you first come out of the very bright meeting hall you cannot see where you are going, so after stepping out into the courtyard I turned on my flashlight and began to light the way to the anteroom with the two women in tow. It was a really clear night, and despite just coming from the bright indoors, one could see many stars. One of the

women suddenly said to the other, "Look at all the stars!" Now I didn't think anything about her statement, for many visitors comment about the number of stars as seen from Seagrave, especially when they live in the Warwick, Cranston, or the Providence metro area where all but the brightest stars are hidden by light pollution.

But then the other woman said, "Yes, but I had a much better view from the ship!" Now I was surprised. Rick told me that some of the members who would visit that night had been abducted by aliens. And all I could think was that not only did she get "taken," but she also had a window seat!

I wanted to tell Rick what I had overheard. We finally ascended the stairs to the Clark. Rick was already showing the group some object and I couldn't speak to him in the small confines of the dome.

A few minutes went by and I hear those same two women talking again. It turns out that they had recently vacationed on a cruise ship! I chuckled out loud a bit. Rick asked me what was wrong, but I couldn't talk to him then. I had to leave before Rick did, so I didn't have an opportunity to tell him my story.

I tried calling Rick at home the next day, but he had already flown out on business. I told his wife Karen and thought she would die laughing. Rick called in sometime during the week, and Karen related my story. He too found the story hilarious. It's still funny today. Jumping to conclusions is the only exercise I get!

Photographing the Orion Nebula

Contributed by Dave Huestis

Soon after I joined Skyscrapers in January of 1975, I purchased my first 35mm SLR camera. Back in those days, before T-adapters were readily available, we used to hand hold our cameras up to the telescope eyepiece and snap an image. For the Moon, Jupiter, Saturn and Venus you could easily acquire a decent picture, even hand holding it for up to one second!

Anything fainter than that was impossible with the Clark telescope, since the drive was not accurate for long exposures. Being new to the organization I did not know that. And being such a neophyte to this fascinating hobby, I decided to try to photograph one of my then favorite objects… the Orion Nebula.

Well, one night I chose a low power eyepiece and proceeded to snap a few pictures on film, most likely High Speed Ektachrome 200. Rick Lynch had visited me up in the dome while I was in the process of photographing this great nebula.

Later that evening I returned to the meeting hall to warm up. I left my camera on the front table and either went back out to observe or make a run to Mary's Country Store for a late snack.

A week or two later I processed the film and was happy to find that I had gotten several fantastic images of the Orion Nebula. I was so thrilled that my first astrophotography session proved so successful that I showed the slides at one of our monthly meetings.

I explained to the membership how I had taken the images. There

seemed to be some doubt among those present that I could have accomplished this feat. Rick Lynch spoke up and said that yes, he had been out there with me for a while as I took the images. Thank you Rick for backing me up.

However, some of the members were snickering. Seems when I left my camera on the front table, a couple of members used it to take a few images of a poster on the wall in the meeting hall which just happened to be… you guessed it… the Orion Nebula.

This is one of those stories that will be fondly remembered for decades to come.

Skyscrapers "Chicken Little" Insurance Policy

SKYSCRAPERS, INC.
Amateur Astronomical Society of Rhode Island
Established 1932 • Incorporated 1936

SEAGRAVE
MEMORIAL OBSERVATORY
PEEPTOAD ROAD
N. SCITUATE, R.I. 02857

THE SKYSCRAPER " CHICKEN LITTLE " INSURANCE POLICY

'The Sky(lab) is Falling ..... The Sky(lab) is Falling .....'

This certificate entitles the bearer to absolutely NO compensation in the case that his/her person, property or Astronomical equipment becomes the target of a piece of (the) Sky (lab). This non-coverage of the above policy will be in effect from 12:01 A.M. on July 9, 1979 to 11:59 P.M. on July 16, 1979. The victim may be anywhere in Rhode Island, nearby Massachusetts or the United States of America. In the event that the Sky (lab) fragment falls on Friday, July 13, 1979 (accompanied , of course, by a black cat walking under a ladder), the victim will recieve five (5) times the coverage described in the above policy, at no extra charge.

In order to make a claim, the victim must show definite proof of such an event. We will accept the following: 1) a series of ekta-chrome slides (at ASA 400), 2) a series of 8 X 10 black and white glossies, 3) a 10 minute 8mm movie (with sound effects and part of the sound track from a recent horror movie) and any bills from repair shops or hospitals that are appropriate. Also, the victim is asked to obtain the actual fragment of (the) Sky (lab) , providing it is under 500 pounds. ALL CLAIMS MUST BE MADE AT THE AUGUST 3, 1979 MEETING OF SKYSCRAPERS INC.

David A. Hueston
Official Skyscraper Signature
2nd Vice President

Policy issued: 7-6-79

Portable Planetarium Show Transcript

Welcome ladies and gentlemen to our portable planetarium, which, as far as we know, is the first in the world of this size. Your host is Skyscrapers, Inc., The Amateur Astronomical Society of Rhode Island.

While our dome inflates, let us tell you something about our organization. In 1932, a group of amateur astronomers gathered at Ladd Observatory at Brown University in Providence Rhode Island. Under the leadership of Professor Charles Smiley of Brown, they founded Skyscrapers.

In 1936 the society incorporated and purchased Seagrave Memorial Observatory in North Scituate, Rhode Island, which it has operated ever since. The observatory is open to the public every Saturday night from 7:30 to 10:30pm or later. Directions to the observatory can be found on the admission tickets you were given for this planetarium program. We hope you will visit us some Saturday night.

Skyscrapers also holds monthly meetings, sometimes at the observatory and other times at local colleges and universities. You are welcome to attend. The date and location of our next meeting can also be found on your admission ticket.

You are also invited to attend Astronomy Day sponsored by Skyscrapers and scheduled for July 19th of this year. This will be an afternoon and evening event aimed at the person with an interest but not too much knowledge in astronomy.

Members of Skyscrapers participate in a wide range of astronomical activities – telescopic observation, astrophotography, meteor observation, and solar eclipse expeditions, to name just a few.

If you would like to consider joining our society full information can be obtained at our display at the other end of the mall, at the observatory, or by writing to our membership Chairman, whose name and address is also on your admission ticket.

Ever since early man looked up at the stars and wondered what they were, astronomy has fascinated people. Perhaps that's because astronomy asks questions. Questions that go beyond those which man might have first asked. An important question man's been asking for a long time is, "What is man's purpose? Why is he here?" But astronomy warns, before you can ask why we're here, you've got to ask, where is here? If someone asks you where you are, your first impulse is to look around you for landmarks. When man looks around he sees the stars. The stars, to us they appear to be tiny pinpoints of light in the sky. Nothing more. But what are they really?

Each star is literally a sun! A sun much like our own - some bigger, some smaller. But each one capable of having a solar system of its own. Perhaps even Earth-like planets. These suns are so far away that the light we see from even the very closest of them took more than four years to get here. And there are an incredible number of these suns in the known universe. Just in our own local group, The Milky Way Galaxy, there are many billions of them. On a clear night, most of them form a hazy strip across the sky. But this is only because we are looking at our galaxy from the inside. If we looked at our galaxy from the outside, at a distance of thousands of trillions of miles, our galaxy might look like this.

And our own star, the sun, isn't even near the center. It's at about two-thirds of the distance from the center to the edge. Just an average star in an average position among billions of other stars. So when we look at our earth in true perspective as one of nine planets orbiting around a very average star, it begins to seem very insignificant. And in relation to the rest of the universe, it is. But it does have an important distinction. It is the home of a civilization, our civilization. And nobody knows, nobody can even estimate, how unique this distinction is. It is true that the chances are there are millions of civilizations in the known universe. And this worries some people. They are afraid of contact with beings from beyond our own solar system. But wouldn't it the more frightening if there isn't anybody else in the universe?

It's easy to think that with all the people, the billions of people that populate this earth, we could never be lonely. But consider this: our galaxy is not the only galaxy, not by any means. In fact, if every man, woman and child could be evenly distributed throughout the known universe, each could have his own galaxy, and still leave plenty to spare. And if you wanted to explore your own galaxy, and you discovered a method of exploring one sun and its solar system every second, and you began exploring at birth, you would die of old age before you had explored even 3% of your galaxy. Now that's lonely.

On earth, our idea of lonely is to be alone in a building at night. But on Earth we can always pick up the telephone and call another person in another building. Can we do the same thing with other civilizations in the universe?

A few months ago, a radio signal was transmitted from the huge radio telescope at Arecibo, Puerto Rico. Aimed at M13, a globular cluster of stars within our own galaxy, it was man's hello to the universe. Even now the message speeds towards its target at the incredible speed of 186,000 miles every second. But don't hold your breath waiting for a reply. For even at that speed it will take 32,000 years for the signal to arrive at its destination. 32,000 years! And if someone or something hears our message and replies immediately, it will be another 32,000 years before we receive their answer. 64,000 years!! Will anyone be listening for a reply? Will man still exist? Will our planet, battered by our own carelessness still be capable of supporting life?

The earth has been called our spaceship and in a very real sense it is. Its atmosphere, both the window through which we look out at the universe beyond and our protection from the cold vacuum of space. And man will need the earth for some time to come. For it will take time to break the bonds which bind man to his world and to this solar system. For break them we must, if for no other reason than they exist. That has always been mankind's way. But we will need time. And we must keep our spaceship, the Earth, working, at least until the day we can leave. For it is not indestructible as we are learning. How long will we need it? No one knows. But only by keeping our spaceship in good repair will we have all the time in the world.

Right: Workmen continue the building of Frank Seagrave's new observatory in North Scituate on August 14, 1914. Frank decided to relocate his observatory from 119 Benefit Street in Providence because coal dust and the installation of gas street lamps began to affect his observations. The skies of Peeptoad Road must have been absolutely gorgeous in 1914. Skyscrapers collection. **Below:** Frank Seagrave (right) and guests observe the January 25, 1925 total solar eclipse from the observatory. Note how flat and treeless the surrounding property is. Skyscrapers collection.

A Pictorial History of Seagrave Memorial Observatory

The proverb states that "a picture is worth a thousand words." Well, if that is true then this gallery of images showing the evolution of Seagrave Observatory could increase the volume of this book by dozens of pages if we were to provide the words to accompany them.

Each of the images is a snapshot in the history of Seagrave Observatory. Since Seagrave built his beloved observatory in 1914, despite all the renovations the old observatory really hasn't changed that much. The shape and character of the building hasn't changed.

If you simply did a line drawing of the 1914 shape and made the same drawing now, everyone who has ever visited Seagrave Observatory would instantly recognize it.

So with only a few captions to accompany this photo gallery, we invite you to reflect upon each image and think about all the events that have been held in the observatory's presence and all the folks who have observed through the venerable Clark refractor during its last 93 years in North Scituate. From Frank Evans Seagrave to Skyscrapers members and our countless guests, we have all had cherished memories of our experiences at Seagrave Memorial Observatory.

A thousand words? No. Just a few will suffice. It's been wonderful!

I hope when it's time to celebrate Skyscrapers' 100th anniversary the society will look back and celebrate the organization's hard work and diligence in preserving a unique piece of Rhode Island history.

Above: The author believes this image was taken by Frederick "Jack" Hoffman as part of the Evaluation Committee's investigation into the purchase of the property. Date of visit is believed to be between October 14 and the 27th of 1936. The property looks rundown. Since Seagrave passed away on August 15, 1934, the property was more than likely abandoned for just more than two years. Fortunately the committee thought Frank's beloved observatory would make a good home for the young Skyscrapers organization. Our society became the new owners in late November 1936. Hoffman collection. **Right, top**: Same as above. It seems that the access to the observatory was on the western side (left in image) of the property. Skyscrapers did not acquire the front piece of land abutting Peeptoad Road (now our parking lot) until September 10, 1941. Hoffman collection.

Above, bottom: 1941: An image from the Charles Smiley collection at Ladd Observatory. Observatory looks in great shape. Notice the metal cover protecting the mount for the transit scope. Also notice that a few more trees have sprung up. Smiley collection.

Above: This 1957 image shows the meeting hall which was built in September 1951 thru May 1952, and the Crawford Dome which was built in 1948. It was seriously damaged by the 1954 hurricane. Though the dome was constructed to house the 16-inch Cassegrain, the scope was never completed and was not installed. The society's six-inch refractor was often moved out to a "permanent" mount for observing. Skyscrapers collection.

Top: October 6, 1956. A good crowd of visitors at the third annual AstroAssembly convention. A nice collection of telescopes as well. Looks like the Trustees needed to conduct a little repair work on the anteroom roof. Skyscrapers collection. **Bottom**: Another photo from 1956. The mount on the right, still out in the courtyard as of this writing, is for the 6-inch refractor. Notice that the trees are encroaching. Skyscrapers collection.

Top: 1969. Anteroom roof has been re-shingled. However, the dome turret looks a little ragged. Photo by Dave Dixon. **Bottom**: 1973. The dome turret has been repaired. The trees behind the observatory are looming larger. Photo by Rick Lynch.

Top: October 5, 1974 AstroAssembly. Good crowd along with a number of telescopes present. Note ladder coming down from the observatory deck. This was installed to facilitate Skyscrapers public viewing for Comet Kohoutek during December 1973 and January 1974. Skyscrapers collection. **Middle**: Winter 1975. Jim Lalime (left) and Mike Passano (right) shovel snow off the dome turret. Not for the faint hearted. Has anyone attempted this activity since that time? Jim and Mike positioned the ladder on the deck… more often than not when the Trustees had to repair the roof they would place the ladder inside the dome beside the Clark telescope and climb straight up through the slit. Photo by Dave Huestis. **Bottom**: January 1976. Snowed in at Seagrave. Trees, trees, trees. No more pastureland. Photo by Dave Huestis.

Top: October 6, 1984. AstroAssembly. Dome turret has been renovated. Actually, since the above image was taken, the turret had been fitted with Phylon. Phylon was chosen because the material was light and kept the weight of the dome significantly lighter. However, very shortly it reacted to sunlight and turned a horrible yellow hue. A new material, seen in this image, replaced it later. A new deck is also apparent. Photo by Dave Huestis. **Middle, left**: Spring/Summer 1994. Before renovations using the 2nd grant (November 1993) from The Champlin Foundations. Photo by Dave Huestis. **Middle, right**: Spring/Summer 1994. After renovations. Anteroom asbestos shingles removed and replaced with red cedar siding, observatory bricks sandblasted and powerwashed, some windows bricked over and re-pointing of the entire brick structure. Afterwards the bricks were coated with a sealant. Photo by Dave Huestis. **Bottom**: September 30, 2006. AstroAssembly. The annual Skyscrapers tradition continues. A good crowd of amateur astronomers and their telescopes stand in the shadow of Seagrave Memorial Observatory. The red cedar siding has weathered. The dome has been well maintained. Some trees are now obstacles to observing and are being dealt with as this book goes to press. The double roll-off roof observatory in the back left houses the society's 12-inch Meade LX200 Schmidt-Cassegrain in the south end and the 12-inch Patton in the north end. Photo by Dave Huestis.

A serene snow scene at Seagrave Observatory. A beautiful image by Dan Lorraine. Roll-off roof observatory in back right houses the 16-inch Meade LX200 Schmidt-Cassegrain.

This book was designed on an Apple iMac G5 using Adobe InDesign CS.
The first printing of 100 copies was printed and bound by Printmakers, Inc. of Pawtucket, Rhode Island.

Looking at the stars always makes me dream, as simply as I dream over the black dots, representing towns and villages on a map. Why, I ask myself, shouldn't the shining dots of the sky be as accessible as the black dots on the map of France?

—Vincent Van Gogh