



A  
QUARTER CENTURY  
OF  
SKYSCRAPING

1932 - 1957

*"A stronger faith in living  
and a firmer belief in the Creator  
is instilled by  
the study of the heavens."*

# A QUARTER CENTURY OF SKYSCRAPING

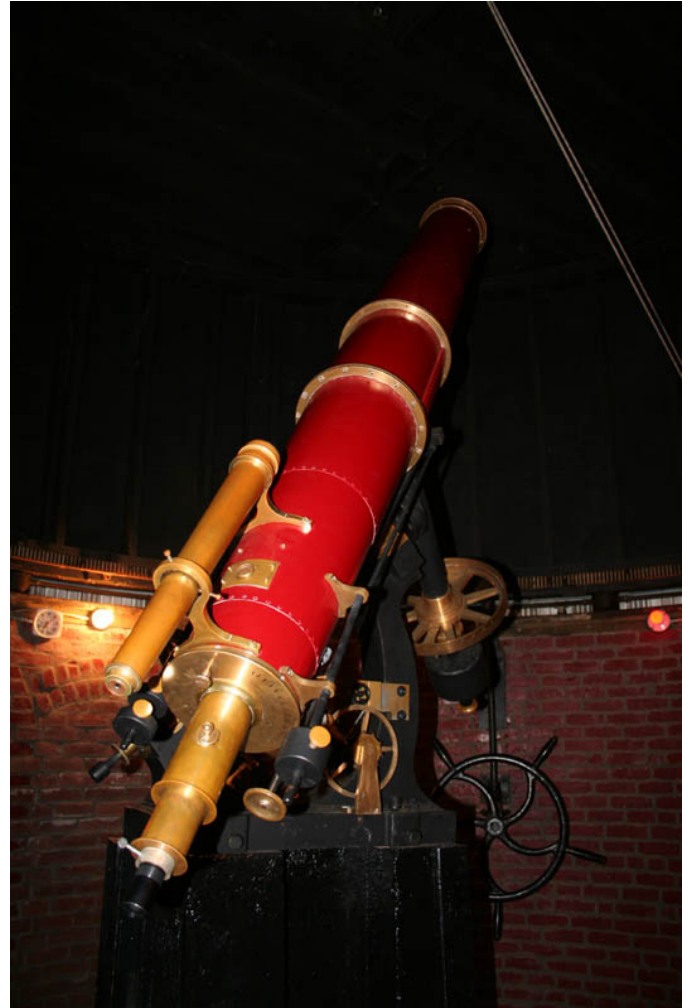
## 1932 - 1957

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75TH ANNIVERSARY EDITION

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The Alvan Clark refractor in late 2006. Al Hall is rebuilding the flyball governor to replace the electric motor that drives the telescope.

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## INTRODUCTION

### Notes on the 75th Anniversary Edition

To commemorate the 25th anniversary (1932-1957) of Skyscrapers, Inc., the society decided to publish a private book highlighting the history and achievements of the organizations first 25 years. Though I currently have no information to support this assumption, many of us believe only 100 copies of this book were ever published.

I became a member of Skyscrapers in January 1975, and much of my initial knowledge of our history often presented itself at a monthly meeting when then historian Bill Guca would often relate a single tidbit during his historical moments report. I soon learned of the "25 Year Book" and was able to make a zerox copy of Bill's volume. It was then that I fell in love with the rich history of our society.

For many years I searched through antiquarian books stores in the hope that I would happen upon a copy of my own. It was more than a 15 year search before I turned up a copy in a Wells, Maine book store. And another 5 to 7 years would pass before I located another one from a book dealer out in Wisconsin. Recently, Dan Lorraine located another copy and donated it to the Skyscrapers library. In all, I guesstimate there are probably 20 or less that we can currently account for.

I wholeheartedly recommend that anyone seriously interested in Skyscrapers history borrow that volume from our library. There is nothing like reading this rare little gem in its original form.

However, with Skyscrapers 75th anniversary approaching on May 5, 2007, there is little time for even a small percentage of our members to read this single volume. Webmaster and newsletter editor Jim Hendrickson thought it would be nice to re-issue "A Quarter Century of Skyscraping" on our web site for all to read and enjoy.

Jim has made some minor changes to the text for clarification. He has also added some images which were not in the original book. I encourage all Skyscrapers members to take a little free time and review the first 25 years of our organization. I think you will find it fascinating and informative.

It will also prepare you for our upcoming 75 anniversary celebration. Our rich history didn't stop in 1957, though it almost did during the mid to late 60's. Within six months Skyscrapers will be publishing, in one form or another, a summary of our entire 75 years compiled by yours truly. Whether you're an old timer or a newbie to the Skyscrapers organization, you'll be amazed at what this great society has accomplished over the decades.

I hope I will be privileged to be around as we celebrate our 100th anniversary in 2032. Will I be history or still the historian?

David A. Huestis  
President/Historian  
Skyscrapers, Inc.  
The Amateur Astronomical Society of Rhode Island



## FOREWORD

During the past several years, it has been suggested that the Skyscrapers publish a book which would contain important information relating to the club's growth from its birth on Thursday evening, May 5th, 1932, to the present time.

May 1957 being the 25<sup>th</sup> anniversary of the Skyscrapers, Inc., it was felt that this was the appropriate time to publish such a book.

A committee was appointed to gather all important information relating to the Skyscrapers and to publish it in book form. This has been accomplished so that the Skyscrapers and their friends, now and in the future, by reading this book can see the growth and accomplishments made by the club in its first twenty-five years.

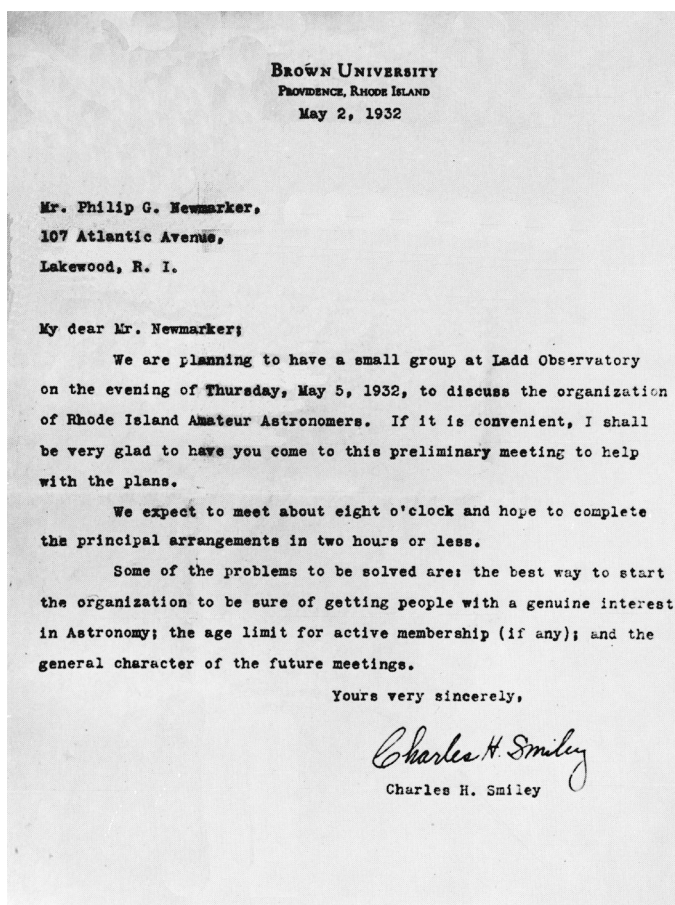
The material in this book has been taken from accurate records, or written by members personally connected with the events.

The success of the Skyscrapers, Inc. has been attributed to the splendid cooperation of its members and friends.

## FOUNDING FATHERS

This year Skyscrapers Incorporated reached its twenty-fifth year of studying, scanning, and enjoying the heavens. The organization was founded “to bring together for material benefits, persons really interested in astronomy, either as teachers, craftsmen, or laymen.” The vigor and enthusiasm of its members have helped it in its growth through the years.

It was the creative imagination of Professor Charles H Smiley of Brown University that was responsible for the birth of the society. He believed that such an organization was needed in the community. On Thursday evening, May 5<sup>th</sup>, 1932, at the invitation of Professor Smiley, a group of persons interested in forming an astronomical society met at Ladd Observatory in Providence. Some had been frequent visitors to Ladd Observatory and others had been students in Professor Smiley’s extension courses.



Founding Letter: Duplicates of this letter were sent by Dr. Smiley to those who attended the founding meeting, May 5, 1932.

The names included Professor and Mrs. Smiley, The Reverend John G Crawford, Elizabeth H Morpeth, Maribelle Cormack, Philip G Newmarker, Genevieve M Fogarty, George H Euart, John L Euart, Paul Eberhart, R Maitland Coleman, J S Coleman, William E Ekman, and Alma W Bishop.

The Reverend John G Crawford was elected the first President and was appropriately chosen for he had all the fine qualities of leadership, had built his own telescope and observatory, and was an enthusiastic astronomer. Elizabeth Morpeth was elected Vice President, and Maribelle Cormack, Secretary-Treasurer.

The name “The Skyscrapers” with the words, “Amateur Astronomical Society” appended to it, was suggested by Crawford and was voted on at the first meeting. It was considered one of the most appropriate names ever to have been chosen by any astronomical club in the country.

At the following meeting on June 6, 1932, a carefully drafted constitution was submitted to the members and accepted. Plans were made for future programs. It was suggested that there be monthly talk meetings and monthly action meetings; the former, to consist of a lecture and answering questions; the latter, for actual work on making a telescope, for star observations, or visit to a telescope. As for material for programs, *The Providence Sunday Journal* on May 8, 1932 congratulated the new society, stating that the subject matter would never give out for it is a live subject, and it is a growing subject. They claimed, too, that amateurs were welcomed by professional astronomers for they observe meteors, eclipses, take photographs, and often discover comets and novae. *The Providence Sunday Journal* wished the newly formed society success.

By the end of the first year the membership had increased to sixty-six and meetings were being held at Wilson Hall at Brown University instead of Ladd Observatory or the Roger Williams Park Museum. For the leadership and vigorous conviction that such an organization could thrive we extend our thanks to our revered founders.



## CHARLES HUGH SMILEY

### Founder of the Skyscrapers

Charles Hugh Smiley was born in Camden, Missouri on September 6, 1903. His parents, Hattie (McCurry) Smiley and Herbert Leslie Smiley were of Scotch-Irish ancestry. He started school in Glasgow, Missouri; he completed grade school and graduated from high school in Clifton Hill, Missouri in 1919. He then moved to Los Angeles, California with his family where he worked for a year in the Security Trust & Savings Bank before entering college. After two years at the University of California at Los Angeles, he transferred to the University of California at Berkeley. From the latter institution, he received the AB in 1924, the MA and the PhD in 1927 with a major in mathematics and a minor in astronomy.



In 1928 he married Margaret Kendall Holbrook of Wellesley Hills, Massachusetts. After two years at the University of Illinois as an instructor in mathematics, he was awarded a John Simon Guggenheim Foundation Fellowship. With Mrs. Smiley, he spent the year 1929-30 abroad on the fellowship, about nine months at the Royal Greenwich Observatory and three months at the Astronomische Rechen-Institut in Berlin-Dahlem, with short visits to Cracow and Copenhagen. During this year, he had the privilege of working with Drs. L J Comrie, A C D Crommelin, P H Cowell, G Stracke and Th. Banachiewicz.



He came to Brown University in the fall of 1930 as an Assistant Professor of Mathematics. Asked to assist in the teaching of astronomy, he arranged a series of open houses for the public at Ladd Observatory in 1931-32 which were well attended. He met many people who were interested in astronomy; there had been a series of monthly articles on astronomy in the *Providence Journal* since about 1887. The Reverend John G Crawford, an Episcopal minister of Saunderstown and Wekefield, came to Brown University to borrow some lantern slides to illustrate a talk on astronomy he was to give before a Knights of Columbus group. At his suggestion,

Professor Smiley invited a number of people interested in astronomy to Ladd Observatory; the contagious enthusiasm of Reverend Crawford led to the formation of the Skyscrapers in May 1932.

Over a period of fifteen years, 1932-47, the Skyscrapers joined Brown University in sponsoring a series of solar eclipse expeditions led by Dr. Smiley; to Sweden, Maine on August 31, 1932, to Punta Callan, Peru on June 8, 1937, to Thomasville, Georgia on April 7, 1940, to Curema, Brazil on October 1, 1940, to Roblin, Manitoba on July 9, 1945, and to Araxa, Brazil on May 20, 1947. He had the generous support of individual Skyscrapers in Brown-sponsored expeditions he led to observe solar eclipses in Charleston, South Carolina on September 1, 1951, to Mastung, Pakistan on June 30, 1954 and to Bang Pa-In, Thailand on June 20, 1955. The only solar eclipse expedition led by Smiley and in which no other Skyscraper participated was the one to BangKien Thailand on May 9, 1948, one of five sponsored by the National Geographic Society. As of 1957, Smiley was tied with Dr. S A Mitchell of the University of Virginia in the number of solar eclipse expeditions led; each had led ten.

In 1935, Smiley completed the mathematical design of an 4" f/1 Schmidt camera. With the generous assistance of Harry A MacKnight, Donald S Reed and F W Hoffman, this camera was completed in time to be used at the 1937 eclipse in Peru. It was then the fastest camera ever used on a solar eclipse expedition; the eclipse had the longest duration of totality in more than a thousand years. In an effort to photograph more of the outer corona than the human eye could record, the zodiacal light in the immediate neighborhood of the sun was photographed for the first time.

In 1938, Dr. Smiley was named Associate Professor of Astronomy and Director of Ladd Observatory. In 1945 he was promoted to Professor of Astronomy.

In 1939-40, a 12" f/3.5 Schwarzschild camera, the second of its kind in the world, was constructed according to Dr. Smiley's design by members of Skyscrapers. The optical parts were made by Arthur Hoag and Dr. Smiley and the mount was designed and constructed by J Frank Morrissey, Harry MacKnight, F W Hoffman, and W Edwin Stevens. This was used for the first time at the total solar eclipse of October 1, 1940.

Between 1947 and 1951, Mr. and Mrs. Donald S Reed, Miss Mary Quirk and Mrs. Smiley joined Professor Smiley in a study of atmospheric refraction at low angular altitudes. They observed along the Labrador Coast, from the top of Mt. Washington, from ships in the Atlantic and Pacific Oceans, and from Punta Callan, a pass in the Black Andes in Peru over 14,000 feet above sea level. The early part of this research was supported by a contract

with the Office of Naval Research. In connection with this work, Dr. Smiley traveled aboard the USS George Clymer from Seattle to Point Barrow, Alaska and back to San Diego and later flew with the U.S. Air Force across the North Pole in September 1949.

In 1953-54, Dr. Smiley developed a tidal-trigger theory of the formation of hurricanes. Early in 1954, he suggested that a peak in New England hurricane activity was indicated by the theory, perhaps in September 1956. It now appears that there was such a peak but that it arrived somewhat earlier than it was expected.

In 1956-57, Professor Smiley was on sabbatical leave from Brown University and spent some of the time in Europe and Mexico. He had traveled over 150,000 miles in the last ten years.

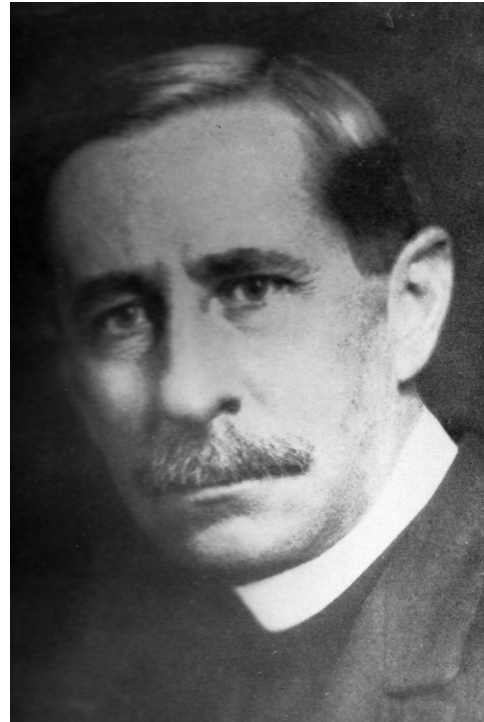
Throughout the years Dr. Smiley has been an unfailing source of inspiration to the Skyscrapers. Every meeting has been highlighted by some bit of information he has thought might be of interest, and he has always been ready to assist in matters of program making. He has taken us in spirits across oceans and over mountains to view solar eclipses. We have gloried in his successes and shared his disappointment when clouds obscured the view. He has given us the feeling that we shared in work of great value. On this, our twenty-fifth anniversary, we look backward with satisfaction and forward with eagerness to many more years of pleasant and profitable association.

Dr. Smiley is a member of Phi Beta Kappa, Sigma Xi, Pi Mu Epsilon and Synton. He is an honorary member of the Geographical Society of Lima (1937) and of the Sphinx Club (Brown University). He is a member of the Royal Astronomical Society (London), the British Astronomical Association, the American Astronomical Society, the Mathematical Association of America and a Fellow of the American Association for the Advancement of Science. He received a Franklin L Burr prize from the National Geographic Society in 1948. He has served as President of the American Association of Variable Star Observers.

## THE REVEREND JOHN G CRAWFORD

### First President of the Skyscrapers

John G Crawford was born at Milton, County Kerry, Ireland. He was the son of William Robert Crawford, a bank manager in Dublin and of Elizabeth Coote Crawford, who died when he was born. By blood and allegiance he was a Scot but the warmth of the land of his birth blended with and softened what might otherwise have been a dour Scots' nature to make him one of the most genial and outgoing and "sympatico" personalities in this world.



In a modest way, he was proud of his ancestry, particularly of his kinsman, Sir Eyre Coote, of Indian Mutiny fame, who is honored with a monument in Westminster Abbey. He was well versed in Scottish history and an engraving of Bonnie Prince Charlie hiding in the glen occupied equal place with another of Edinburgh Castle on the walls of his home.

His early training was received from his stepmother and a governess. At 12, he went to Dr. Ball's School for Boys near his home. He attended Dublin University. When he found himself without funds, he pawned his possessions to buy books.

Quite early he became intensely interested in electricity. He immigrated to the United States and worked for the General Electric Company in Lynn, Massachusetts. On a return trip to Scotland he met the niece of a family friend, Miss Mary Gibson, a true Scots lass from "Auld Reekie" (Edinburgh to the Sassanach), and promptly fell in love with her.

"He was very attentive to me," the future Mrs. Crawford is quoted as saying. "He would get me a deck chair and a rug and read to me from the *Iliad and the Odyssey*."

John Crawford was then working in the Dublin Power House and to the Gibson family in Edinburgh his frequent trips across the Irish Sea by ferry seemed an awful waste. Especially as he could spend only an hour or two

with his fiancée. "So one day" (we quote Mrs. Crawford again) "he led me into St. Mary's Cathedral, Edinburgh, to put the ring on my finger. He said no other place was suitable, so we were married in Edinburgh, January 4, 1893. His first gift to me was a copy of *Imitation of Christ* by Thomas A Kempis."

The Crawfords returned to the United States and John rose steadily in his profession. Soon he was foreman and chief draftsman with General Electric in Lynn. Later he was with Westinghouse, Jeffrey Manufacturing Company, and manager of the Oxx Fiber Company of Frederick, Maryland. This firm cabled him to Europe: "Make no contract without us." He came to Rhode Island as works superintendent for the Gallaudet Airplane Company of East Greenwich. Here he lost his gypsy foot and remained for life.

During all his work-a-day life, he found time to pursue his religious interests. During noon hours in the Airplane Company, he conducted fifteen-minute religious services in a quiet corner of the shop. But it was in his charity that he showed the greatness of heart which so endeared him to everyone who knew him from the borders of Killarney to those of Narragansett Bay. He founded missions, here and abroad. He sent an annual donation of \$1,000 to the Barnardo Home for Children in London. And in his almost nonexistent leisure, he carried his microscope and slides to the Home for the Aged and the School for the Deaf so that he might show them the wonders of God's world.

He had been a lay reader for many years. In Saunderstown, where he lived at Braefoot (the foot of the hill) down by the water where he could watch the building of the span of the Jamestown Bridge, he became reader at St. John's Episcopal Church, and in the Church of the Ascension in Wakefield. We assume that he had been brought up an Anglican, though this is rare for a Scottish family. Indeed, Mrs. Crawford, born to the uses and plain ways of Presbyterianism, found many Episcopalian customs a trifle bewildering. He had been studying Greek so that he might read the Greek texts of the New Testament. And he was by long diligence a fine Bible student and had received a gold medal for his Biblical learning.

Bishop James DeWolf Perry of Rhode Island finally persuaded John to study for the ministry and to take orders in the Episcopal Church. Friends believed that it was the terrible loss of life among the young airplane pilots of that day which led him to that decision. He resigned from a very highly paid engineering position to become, in his own phrase, "The Vicar of Wakefield." He was ordained on July 2, 1922 in the Church of the Ascension in Wakefield.

He once told this writer that his entire theological training had cost him fifty

cents -- for two lectures at night school. The remainder of his work had been done at the school of the midnight lamp with only his books for his teachers. Part of his oral examinations was on a secular subject: electricity. He was supposed to speak for half an hour. He held his audience of examiners spellbound while the hourglass was turned.

He served not only his two churches in Wakefield and Saunderstown but also the whole community. He was a man without prejudice, whose love of mankind knew no barriers. He received many calls to be speaker on every sort of occasion, to many groups of people. On one famous occasion he was addressing the Friendly Sons of St. Patrick or maybe it was the Knights of Columbus on St. Patrick's own day. "How many of you here are Irish?" he asked, in his thick Scottish burr, which he never lost.

Up went every hand.

"And how many of you were born in old Ireland?" he demanded. Not a hand was raised except his own.

"A fine thing," he exploded, "when the only true Irishman at the Knights of Columbus Banquet is the Episcopal Rector."

His most loved hobby was telescope making. There is no need to tell any Skyscraper how proficient he was at grinding lenses and making mounts. His instrument at our Seagrave Observatory bears its own testimony. He made the largest telescope in Rhode Island, a 13-inch reflector. For this he built his own mount and his own observatory. Asked how he had ever learned to make such a large instrument, he replied: "Well, I made a 10-inch." "And how the 10 inch?" he was asked. "I made an 8 inch!" And so on back to a 6-inch! One 6-inch refractor he made was pronounced by the famous firm of Alvan Clark, "as nearly perfect as is humanly possible."

He was not the first Irish cleric to be a telescope maker. He followed in the footsteps of an Anglican Rector in Ireland whose work laid the basis for the later work of Porter known to all of us. We are very proud of our legacy in glass from such a meticulous craftsman.

Genius has no borderline. Whatever he did, he did well, and he did it with his whole heart, Perhaps he worked both hands and heart beyond his strength, for on April 1, 1933 he suffered a severe heart attack which compelled him to resign from his beloved churches. When he could not go to them, his parishioners came to him. Who is there among his friends who does not remember taking an Old World high tea at Braefoot, Saunderstown, with gracious Mary Gibson Crawford presiding over the tea tray.

On one such occasion, I had taken a friend with me. Mrs. Crawford turned to her with a smile and said warmly, speaking of this writer; "There's a bond between us! You don't ken what it is? We're both Scots!" And we smiled together at Charles Stuart on the wall, the prince for whom both our ancestors had given their lives and fortunes.

The Reverend John G Crawford died at his home, after years when he struggled against any inactivity, on January 6, 1943. A perpetual light established in his memory by the young people of his congregation burns for him in the church at Wakefield. There is a plaque in his memory in the church at Saunderstown.

But he needs no memorial while he lives in the memory of us who knew him. I remember him as a rugged, broad shouldered man with the warmest smile and the staunchest heart in the world; with the skilled hands of the engineer; the eyes of the mystic; and a humor blended of heather and shamrocks. He seemed to have taken something to himself from the crags of Scotland, overlaid with the soft warmth of Irish meadows, for here was great strength with great gentleness.

His biography would not be complete without the tale of how he weathered the terrible panic of 1893. This story comes from his sister-in-law, Miss Gibson, who was a member of his household.

"Jack had verra big jobs," she told us, "but when the panic came, he was laid off from General Electric at Schenectady. There was no work and folk were standing in bread lines. So, Jack put a pack of tools on his back, and walked miles out into the country mending pots and pans and doing odd jobs for the farmers. And there was never a day that he didna bring home a few dollars to the wee wife waiting in the wee butt and ben."

I wonder if the good Dutch farmers of the region may not have guessed that in their handyman they were entertaining an angel unaware. This story typifies the personality and character of our first president, of whom we are so proud:

John G Crawford, skilled engineer, gentleman of the cloth, amateur astronomer. If he could write his own epitaph we feel it would be in the words of Abou Ben Adhem who asked the angel if his name stood in the great book of those who love the Lord. The angel shook his head. Ben Adhem asked: "I pray thee, then, write me as one who loves his fellowmen."

"And, lo, Ben Adhem's name led all the rest."

## HOW THE SKYSCRAPERS ACQUIRED AN OBSERVATORY AND OTHER PROPERTY

When the group now known as Skyscrapers, Inc. met first on May 5<sup>th</sup>, 1932 at Ladd Observatory on Doyle Avenue in Providence., the name chosen was "The Skyscrapers' Amateur Astronomical Society of Rhode Island." This title was suggested by our first president, the Rev. John G Crawford.

For some time after this organization meeting, the society had no physical property whatsoever. Our first acquisition was a book, Amateur Telescope Making, presented by Dr. Charles H Smiley on June 3<sup>rd</sup>, 1935, to start a library.

At a meeting held on September 16<sup>th</sup>, 1936 Mr. Donald S Reed moved that a committee of three be appointed to investigate the possibility of purchasing the observatory and telescope in North Scituate which had been owned by Mr. Frank E Seagrave, one of our honorary members who died in August 1934.

On October 7<sup>th</sup>, 1936 the committee was appointed, consisting of Mr. Archibald C Matteson, a prominent lawyer, as chairman, Dr. Harry L Koopman and Mr. Ralph C Patton. Investigation by this committee revealed that the observatory property had been bequeathed by Mr. Seagrave to his cousin Mr. Walter F Angell of the law firm of Edwards and Angell. The recent death of Mr. Angell had placed the observatory property in the hands of his executors and trustees for disposition. Mr. Matteson suggested that a benefactor might be found who would buy the observatory, telescope and appurtenances for Brown University with the provision that the Skyscrapers be permitted to use the equipment. He said that this would obviate the necessity of our putting up any money and would relieve us of paying taxes on the property. This suggestion seemed attractive as the club was long on brains but short of cash. It was voted to put that matter up to the executive committee. Mr. Frederick W Hoffman presided at the next meeting of this committee on October 14<sup>th</sup>, 1936 and from that

Providence May 27 1932  
 Miss Maibelle Gowmack  
 Park Museum  
 My Dear Miss Gowmack  
 I am in receipt of your letter of May 24 notifying me of my election ~~to~~ 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.



This letter from Frank Evens Seagrave dated May 27, 1932 states his acceptance as an honorary member of Skyscrapers. The founding of Skyscrapers had taken place 2 weeks earlier. Bottom: Frank observes with his 8¼ Clark.



time on he took an active part in all matters pertaining to the acquisition of the North Scituate property. It was voted that Matteson, Smiley, Koopman, Reed, Hoffman and Patton should visit the property and report on the condition of the building and equipment. They reported that the telescope was an Alvan G Clark refractor made in 1878, of eight inches aperture and 105 inches focus, equatorially mounted with clock drive, housed in a turret observatory having a small office building attached. The telescope, various eyepieces and spectroscope were found to be in excellent condition, and the building in fair condition. The real estate included about one third of an acre of level land connected with Peep Toad Road by a ten foot wide right of way for access.

Preliminary talks with the trustees indicated that they hoped to sell the property for several thousand dollars as they had an exaggerated notion about the resale value of the telescope, and they spoke of offering it for sale to Brown University, the RI State College at Kingston, and other institutions. Our committee stressed the age of the instrument and the fact that its value would be decreased greatly if it had to be removed from its present secure mounting in order to transport it elsewhere, After this deflation, the trustees and the trust department of the RI Hospital Trust Co. intimated that they might consider \$1,500 or even \$1,200 as a sacrifice price for quick action.

In the November 2<sup>nd</sup>, 1936 Skyscraper meeting at which Mr. Hoffman presided, Mr. Philip G Newmarker urged that we try to raise a thousand dollars to buy the property and equipment in our own right and that we no longer consider Brown or any benefactor.

Mr. Patton reported to the membership on November 6<sup>th</sup> that he had seen Mr. Stower, one of the trustees and had received his assurance that a firm offer of \$1,000 would be considered seriously. A fund raising drive was organized immediately. Mr. Matteson reminded our group that the Skyscrapers would have to become an incorporated body in order to hold property. Anticipating this, he had prepared the necessary application and the following members were chosen to sign as incorporators of Skyscrapers, Inc., a shortened form of our original lengthy title:

**INCORPORATORS OF  
SKYSCRAPERS, INC.**

1936

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 charter of incorporation was issued by the secretary of state on November 17<sup>th</sup>, 1936 and was presented to the members two days later. At the November 19<sup>th</sup> meeting, the incorporators voted in as members of the new organization Skyscrapers, Inc. all members in good standing in the old group, The Skyscrapers Amateur Astronomical Society of Rhode Island. We

were then prepared to hold property legally and pushed the fund raising campaign with vigor.

Mrs. Louis W Downes, a sister of Mr. Seagrave, was approached for a contribution. She asked what we proposed to call the observatory, When Mr. Patton replied that we would probably name it "The Frank E Seagrave Memorial Observatory," she said that she would give \$100 if we would call it "The Seagrave Memorial Observatory," as it would then memorialize her father who paid for the land, building and equipment as well as her brother who used them. Mr. Henry D Sharpe Sr. donated another \$100. With these contributions and other generous gifts from members and friends, we were able to authorize Mr. Hoffman on November 23<sup>rd</sup>, 1936 to pay \$1,000 for the property. This was accepted by the trustees of the Walter F Angell estate and a dream came true.

After repairing the observatory building, cleaning the instruments and tidying up the grounds, the first open night was held at the Seagrave Memorial Observatory on January 15<sup>th</sup>, 1937. *Fait accompli*.

Miss Victoria E Atwell, one of our interested and loyal members, died on January 1<sup>st</sup>, 1940. Her will contained the following paragraph, "I bequeath to Skyscrapers, Inc. the sum of \$100. This bequest is made in pleasant memory of the hours spent at its meetings." Her hours spent with us were equally delightful to all of those whose good fortune it was to know that sincere and lovely lady.

The bequest of Miss Atwell, the first ever received by the Skyscrapers, was made known to the membership on February 10<sup>th</sup>, 1941. At that meeting, Mr. Sam Holman was authorized to find whether the vacant land between the Seagrave property already purchased by Skyscrapers and Peep Toad Road could be bought for the \$100 left by Miss Atwell. On April 9<sup>th</sup>, 1941, Mr. Holman reported that the land in question on the south side of our observatory property was owned by Henry W and Mable S Rice and that it comprised about 0.36 acre. Mr. and Mrs. Rice also wanted to sell us a 0.14 acre vacant lot of irregular shape abutting our property on the north side. Mr. Holman said that he had tried to secure both pieces of land for Miss Atwell's \$100 but the Rices would not sell for that amount. The members present voted that Dr. Smiley and Mr. Holman were to continue negotiations with Mr. and Mrs. Rice in order to secure both parcels of land offered by them, at the most favorable price obtainable. Finally, both pieces of the property were conveyed to Skyscrapers, Inc. by Henry W and Mable S Rice for \$175 in a deed dated September 10<sup>th</sup>, 1941. It is believed on good evidence that most if not all of the additional \$75 came from the pockets of our negotiators. This last purchase brought the total land owned by Skyscrapers up to the present amount, 0.89 acre.

Development of our property was not without casualties, a few minor and one serious. Mr. Newmarker, as capable with pick and shovel as in doing optical work of the utmost precision, was in our well when the accident happened on December 1<sup>st</sup>, 1941. While he was guiding a heavy section of tile pipe into position, the pipe slipped and crushed his right hand severely. Clever work by his surgeon during the five days spent in the hospital saved his fingers, but it was many months before he could use that hand.

At the regular June 1942 meeting, Prof. Smiley reported that the Rev. John G. Crawford had donated to the Skyscrapers an 8 inch reflecting telescope made by himself, This gift from our first president became doubly precious to us as Crawford died soon after on January 6<sup>th</sup>, 1943.

Mr. Hager who was a close friend of the Crawfords told the membership on January 5<sup>th</sup>, 1944 that Mrs. Crawford had made a gift of her late husband's astronomical books to our library, and that the 6 inch refracting telescope which he had made, would be transferred to us, as it was an expressed wish of her husband that the last instrument made by him should eventually become the property of his beloved Skyscrapers.

A revolving dome 12 feet in diameter suitable for housing an astronomical telescope was included in the equipment received by Skyscrapers from the Crawford estate. The transportation of this dome from Saunderstown, RI to Seagrave Observatory and its subsequent erection on a suitable cement block base enclosure required the expenditure of considerable time and effort on the part of a number of energetic Skyscrapers, particularly Newmarker, Morrissey, Stevens, Jencks, Ryan, Penhallow, Potter, Dutton and Williams. Work on the Crawford dome was completed December 5<sup>th</sup>, 1948.

During the summer of 1950, our ever energetic Morrissey and Newmarker constructed a very rigid and ingenious outdoor mount, some of the parts of which were furnished by Mr. Fred Schwarz, for one of the Crawford telescopes. They were given our sincere thanks for the completion of this on July 24<sup>th</sup>, 1950.

As the Seagrave Observatory and grounds came to be used more and more by our members and guests, it was found that the location and comparative privacy made the place an ideal spot for picnicking and cooking out. Therefore, some outdoor fireplaces were constructed. One of these was christened the "Crawford Fireplace," and another "The Hager Fireplace." It soon became apparent that a building larger than the little office would be most useful. We urgently needed an assembly hall where lectures could be given and pictures projected for audiences of up to 100 people. As our finances were at a low ebb as usual, the expense of erecting such an assembly hall

seemed prohibitive, but as we had accomplished the almost impossible before, it was decided to try to do so again.

Our August 6<sup>th</sup>, 1951 meeting authorized building a “club house” 20 feet by 40 feet, with the understanding that the work would be done in so far as possible by our own members, using material which would cost about \$1,800 according to estimate. It was hoped that the cost of the material would be defrayed by soliciting our membership for contributions. An encouraging start was made by Mr. Morrissey who said that he would donate the doors and windows, including their frames. A plan was drawn up promptly and actual work on the building began September 26<sup>th</sup>, 1951. By October 8<sup>th</sup> the foundation was complete and erection of the wooden frame started October 12<sup>th</sup>. At our meeting held December 3<sup>rd</sup>, 1951 Mr. Morrissey, chairman of the building committee, reported that the assembly hall was practically finished except for the ceiling and painting. The latter was taken care of in the spring of 1952 so that the building was dedicated and turned over officially to the trustees by the building committee on May 26<sup>th</sup> of that year. The ceiling was installed two years later. Prominent among those who rendered heroic service in the erection of the assembly hall were, Mr. and Mrs. J Frank Morrissey, Mr. and Mrs. W Edwin Stevens, Mr. and Mrs. Philip G Newmarker, Mr. Frederick W Hoffman, Miss Maribelle Cormack, Miss Wilhelmina Null, Miss Harriet Laird, Mr. and Mrs. Ernest R Hager, Mr. and Mrs. Frank E Jencks, Admiral Scott Umstead, Mr. Samuel W Holman, Mr. and Mrs, Roy Moone, Mr. and Mrs. C Bird Keach, Mr. and Mrs. Joseph Holgate, Mr. William Penhallow and the Rev. William Fagan. Non-members to whom the Skyscrapers are greatly indebted are Mr. John F McCusker who supplied lumber cut to size at cost and Mr. Walter Hoxie who acted as construction foreman without charge. The total cost of the assembly hall was \$1,956.08.

Unfortunately, the collection of special contributions did not keep pace with the expenditures. So, in December 1953, Mr. Newmarker undertook to put on a one man telephone campaign to collect the balance needed. At the January 6<sup>th</sup>, 1954 meeting he told the members that as a result of his phone solicitation, all debts had been paid and that the assembly hall was truly our very own, at last. There should have been dancing in the streets that night, especially in Peep Toad Road.

At the time this book is published, the Skyscrapers are engaged in a very

## *Lay of the Last Mosquito*

Invitation to Our Housewarming

*Oh, once we were roofless  
No Club House had we!  
Mosquitos they bit us  
and right merrily!*

*We slapped while we listened  
To heavenly lore!  
But Mosquitos they ain't  
Goin' to bite us no more!*

*We got us a roof tree --  
Our splendid New Hall --  
With seats and their comforts  
For members and all.*

*Our buildings are mended,  
All sturdy and stout.  
Come rain, squall or snowflake  
They'll keep the damp out.*

*All buildings at Seagrave  
The round and the square  
All that we own's in a  
State of repair!*

*Don't believe what you're told  
But just come out an' see!  
This here House Warmin's  
A real Jamboree!*

*The Urn of the Presidents  
Shining with chrome  
Will furnish the cheer  
For warming our home.*

*Come pack the place full  
The last Monday in May...  
Who knows? We may even  
Have STARS on display!*

ambitious undertaking; the construction of a 16 inch Cassegrain reflector to be mounted equatorially in the Crawford dome being reconstructed for the purpose. Guess who the principal actors in this real life drama are; none other than Mr. Newmarker and Mr. Morrissey. But that is another story -- for the future.



Seagrave Memorial Observatory, Peep Toad Road, North Scituate, RI. Left: Club House; Center: Crawford Dome which will house the new 16 Cassegrain reflector. Right; Seagrave Memorial Obsevatory.

## HIGHLIGHTS AND ACHIEVEMENTS

Observing has always been an important part of Skyscraper activity. One of the first opportunities to share this experience came soon after the group was organized, when some members met at Ladd Observatory at 3:00am. to view an eclipse of the moon.

In June 1938 Mr. Jack Hoffman took Kodachrome pictures of an eclipse of the moon through the Seagrave telescope. These were the first Kodachrome pictures of a lunar eclipse ever taken. Mr. Hoffman appeared before the American Astronomical Association in New York and read a paper on color photography of a lunar eclipse.

On December 31, 1940 the following notice appeared in the Evening Bulletin:

*"Opportunity given to view Comet through telescope. Skyscrapers, Inc. offers one and all the chance of a lifetime to peer at a Comet through their 10 foot telescope at Seagrave Memorial Observatory. The Skyscrapers, a band of astronomy enthusiasts, are holding Open House at Seagrave Observatory, on Peepoad Road, North Scituate, tomorrow (Jan. 1, 1941) between 5:00 P.M. and 5:45 P.M., the best time to observe Cunningham's Comet, latest star in the heavenly show."*

At the most, about forty comet-interested people were expected, but the Seagrave Observatory was literally swamped with between 600 and 800 men, women and children. The comet gazers lined up and filed past the telescope as rapidly as possible, but only one-half of them were able to look through the eyepiece before the comet had set.

Several Skyscrapers equipped with field glasses and small telescopes went to the aid of the standees who flocked the grounds of the observatory, giving hundreds a glimpse of the comet. Autos lined the narrow road for miles and a state policeman directed traffic. Never did the observatory see such a crowd. One member of the Skyscrapers was forced to climb up the balcony to the dome, as those who had been standing in line refused to allow him to go ahead of them.

William Gardner, Vice-President, was assisted in showing the comet by Donald and Constance Reed, Phil Newmarker, John Euart and Ralph Patton.

Before World War II, we had monthly section meetings for those interested in special phases of astronomy. The groups were: telescope making, led by Mr. Donald S Reed; a constellation group led by Mrs. Margaret H Smiley; a mathematics group led by Dr. Charles H Smiley; and a meteors and

variable star group led by Mr. John Euart. All groups except the variable star group met at Ladd Observatory. Mr. Reed and his group spent many an hour walking around barrels, grinding and polishing their mirrors and then testing them with the Foucault test. Four, six and eight-inch mirrors were completed in this class. Among the members of Mrs. Smiley's group who made celestial globes useful in studying the constellations were Mrs. Elizabeth Morpeth, Miss Angeline Pettey, Mrs. J Danforth Edwards, Mrs. George L Sawyer, Mr. George Euart and Mr. John Euart. The mathematics group -- Miss Quirk, Miss Harris, Mr. Estes, Mr. Hoffman and Dr. Smiley worked on computations in regard to occultations and orbits of comets.

One very active group was the one that studied meteors. It was in 1932 that Professor Smiley suggested that the members observe the meteor shower in the early part of August, the Perseids, counting meteors was ideally suited for group participation because the only requirements were time and patience. George H and John L Euart at the next meeting reported a total of 110 meteors observed between 1:00am and 3:30am. After that report Professor Smiley asked Mr. John Euart to address the Skyscrapers on the subject of Meteors. This was followed by a similar talk at the Roger Williams Park Museum in Providence on December 5, 1932. President Walter H Wakefield of the Aldrich Astronomical Society of Worcester invited Mr. Euart through Prof. Smiley to address that group, which he did on a snowy night of April 12, 1933.

The meteor program seemed to be under way. In October 1933 arrangements were made with the Regional Director of the 1933 Leonid count, Mr. R B Butler of Plainfield, New Jersey, to attempt plotting meteor trails which required accurate time and sight observing. Although only a total of 37 meteors were plotted in two nights of observing, Dr. Charles P Olivier of the American Meteor Society advised us on April 23, 1934 that the real heights of two meteors had been determined from our observations. These were published as part of a table in "Meteor Notes" in the May 1934 issue of Popular Astronomy. The height was determined from complimentary sightings furnished by Mr. George P Kirkpatrick of Piermont, New York, a member of the American Meteor Society. Observations were continued through 1934 and 1935. Mr. and Mrs. Franklin S Huddy and Mr. Harry MacKnight were enthusiastic workers, as well as Mr. Stuart C Sherman, now librarian at the Providence Public Library. Some meteor photography was attempted also.

With the acquisition of the observatory at North Scituate, Mr. Frederick W Hoffman, Vice-President, on September 19, 1935 asked Mr. Euart to take over at least temporarily the organizing of the Meteor, Variable Star and Comet group. The first meeting was held October 2, 1936 and seven members attended. Arrangements were made to observe the Orionid

shower on October 18th at the Lewis J Boss home in North Scituate. Mrs. Smiley plotted 34 meteors and the group had a very enjoyable evening. Interest continued in the work of the group and in the latter end of 1936 the mailing list numbered eighteen members. Included were such names as Miss Angeline Pettey, Mrs. Elizabeth Morpeth, Miss Elizabeth Cooper, Mr. and Mrs. Frank Sherman, Mrs. Donald S Reed, Mr. Paul Eberhart, now of Washburn University, Topeka, Kansas and Mr. Chester A Mowry. Mrs. Helen Holmes, a member of the AAVSO, contributed greatly to the variable star program. We also worked with the New Haven group under Vincent Anyziski. Reports of each shower were sent to the American Meteor Society. The Perseid shower in August 1938 yielded 44 meteors for one observer and there were at least nine observers, including Professor and Mrs. Smiley. Dr. Olivier always complimented us on the accuracy and completeness of our reports. The program provided many an evening of pleasant sociability for the members of the Skyscrapers.

Although much serious work has been done at Seagrave Memorial, it has also been the scene of many enjoyable picnics preceding the summer meetings. The suppers are flavored with spicy conversation as well as delicious food, of which there is always enough and to spare for anyone who comes at the last minute and has not had time to provide his own fare.

At one such supper meeting Mr. George Loveridge and Mr. Raymond Ball of the Providence Journal gathered material for a feature article for their papers. Pictures were taken around the picnic tables and outdoor telescope, and also inside the dome. The article and pictures appeared in the "Rhode Islander" of October 8, 1950. Included were pictures of Skyscrapers using or working on their own telescopes at home.

The observatory, where we work and play, has been the pride and glory of the Skyscrapers ever since its acquisition. It was shortly after the purchase of Seagrave Observatory that one of our members decided it would be appropriate to have a picture of the observatory for our letterhead. Mr. Russell W Porter of California had made three wash drawings. From one of these Mr. William Gardner made a line drawing from which a cut was made for use on our stationery and membership cards. Using this same design Mr. Samuel Holman, a jeweler from Attleboro and Skyscraper member, designed a pin for our society, Mr. Holman donated the pins which were sold for \$1.50, and said he wished the money to go to the Seagrave Memorial Observatory Fund.

Not only have Skyscrapers had the use of their own observatory, but they have also enjoyed the facilities of Ladd Observatory. Since this was so, they were only too glad to join Brown University in celebrating the Fiftieth Anniversary of Ladd Observatory on October 21, 1941, At this meeting Mr.



Ernest Hager informed us that Brown's astronomical studies were largely due to the efforts of Benjamin West and Joseph Brown. We learned from Professor Frederick Slocum, director of Van Vleck Observatory of Wesleyan University, Connecticut, that the observatory was the gift of the former Governor Herbert W Ladd. Another speaker of the evening was Dr. Harlan T Stetson. The speakers praised Dr. Winslow Upton, first director of Ladd. In honor of the occasion, Dr. Upton's daughters, Miss Eleanor and Miss Margaret Upton, were present. It was brought to the attention of the members that although not many streets of the city were named for astronomers, Upton Avenue, Providence had been named for Dr. Upton. Later in the evening the dome was opened and Mars put on a grand display.

Trips together to visit other similar groups have always been a feature of the Skyscraper program. One such trip, which was greatly enjoyed and is often recalled by those who took part, was a visit to the newly opened Hayden Planetarium in November 1935. They traveled by way of the New York boat, taking advantage of the Providence Line's offer of a round trip ticket for the princely sum of \$3.85 if all the tickets were bought at one time.

The Annual Conventions of the Springfield, Vermont, Amateur Telescope Makers at Stellafane have long been a goal for Skyscrapers. The excellent speakers and many ingenious telescopes and mounts have been intensely interesting to everyone. These meetings have several times been followed by an enjoyable Sunday spent at Lake Sunapee on the invitation of Professor and Mrs. Smiley.

The New Haven Astronomical Society has occasionally been our kind host. We have always enjoyed their hospitality and have taken pleasure in inviting them to Seagrave.

In 1933 the Skyscrapers went to the Connecticut State College for Women to attend the twenty-second Annual Spring Meeting of the American Association of Variable Star Observers.

Frequent invitations to visit the Amateur Telescope Makers of Boston have been accepted, and many pleasant memories retained by the members who went, especially of the picnics at Oak Ridge in 1936 and 1937.

In May 1952 the New York Astronomers invited us to a two-day convention. They had planned many interesting events for our entertainment, including a tour of the Museum of Natural History, observing from Rockefeller Center, a visit to Fordham University's seismograph and, by no means least, a delicious luncheon on Saturday.

Having enjoyed so many conventions in other places, Skyscrapers decided

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 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,



Philip Umstead  
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.

Invitation to our first "AstroAssembly" Amateur Astronomical Convention in 1952.

to have a convention on their own grounds. **On August 2<sup>nd</sup> and 3<sup>rd</sup>, 1952 the first Amateur Astronomical Convention of the Skyscrapers** was held in North Scituate, Rhode Island. Invitations had been sent to six astronomical groups in New England. Heavy rains fell on August 2<sup>nd</sup>, although Mr. Philip Newmarker, one of our members said it had not rained on that date for the past thirty years. Regardless of the weather, seventy-four persons attended.

Mr. William Greene, a member, demonstrated for the first time his new eleven-foot portable planetarium. This was a marvelous piece of engineering as the dome ceiling, made of cloth, was held to a perfect sphere by a vacuum between the inner and outer cloth domes. His projector showing eight hundred stars, planets, sun and also the phases of the moon was a big attraction.

In our optical section Mr. Newmarker had an excellent exhibit which attracted a great deal of attention, too. A grinding and polishing machine was shown in operation and flat testing was demonstrated. Mr. Newmarker showed Hats, optical mirrors and prisms and explained how they were made.

Everyone visited the dome to see the Alvan Clark 8" refractor telescope. Those who had visited us a number of years before remarked about the new building that had been erected. All were amazed that we had so much property and equipment, and praised the society for keeping it in such excellent condition.

The ladies served a delicious dinner that made everyone say they hoped we would invite them again. After dinner, prizes were awarded to the clubs having the most members present, the best amateur telescope, the most unusual optical accessory (this was a specially designed sidereal clock), the best optical flat, and for the person coming from the most distant point.

Sunday morning, at the invitation of Admiral Umstead, the



Coffee being served at the first AstroAssembly, 1952

Year	Attendees	Clubs Represented
1952	74	6
1955	99	5
1956	101	7

guests enjoyed a visit to the Spitz Planetarium at the University of Rhode Island. Because of the success of this convention, the Skyscrapers held others in 1955 and 1956.



The 2<sup>nd</sup> Amateur Astronomical Convention (now known as AstroAssembly) at Seagrave Observatory, October 1<sup>st</sup>, 1955. The top photo was taken from the balcony on the Alvan Clark building looking out towards the parking lot. The bottom photo shows the home-built telescopes in the main courtyard.

Of course, we all like to observe, but if one were just an armchair astronomer he would feel well informed if he had attended the many and varied lectures given by outstanding astronomers throughout the years. Dr. Clyde Fisher, Curator of Astronomy at the American Museum of Natural History, spoke to the group at its first annual meeting. He described several theories about meteors, one being that the meteor shower which the earth passes through in August and November are debris of exploded comets. In 1940 Dr. Clyde Fisher, who had now become Director of Hayden Planetarium, New York, returned to us and lectured about “Messengers from Outer Space”. He showed us colored slides of famous meteorites Tent, Dog and Woman and of craters in Siberia, Estonia, Australia, Texas, and Arizona.

Dr. Bart J Bok, Associate Professor of Astronomy, Harvard College Observatory, enlightened us on “The Truth about Astrology”, He stated that as much as \$125,000,000 was spent in one year on astrology in one city. Dr. Bok urged each one of us present to keep on informing the public that statistics are not available for any astrological so-called facts.

Dr. Harlow Shapley, Director of Harvard College Observatory, addressed the Tenth Annual Meeting held in Wilson Hall, Brown University. He explained the “Mysteries of Star Clusters” telling about the evolution of star clusters. Dr. Shapley’s statement of the number of galaxies discovered in our expanding universe is beyond the grasp of the average listener.

Many of our speakers have been men, but Dr. Annie Jump Cannon, Curator of Astronomical Photographs of Harvard Observatory, spoke to us on “Reminiscences of an Astronomer”. Dr. Cannon was then America’s foremost woman astronomer. She described her work in connection with the Henry Draper Memorial Catalogue, the largest collection of photographic plates of stars and their spectra in the world. She had classified nearly one-half million stars in both northern and southern skies. Dr. Cannon had made regular visual observations of variable stars and had built up a card catalogue of these stars to a total of 130,000 cards.

"The Mysteries of The Sun" was the subject brought to us by Dr. Donald H Menzel, Associate Professor of Astrophysics at Harvard College Observatory. Dr. Menzel exhibited a number of slides showing the periodicity of sun spots and their relation or supposed relation to the increased night static, the variation in signal intensity of transatlantic radio signals, the thickness in fur on such animals as the fox and rabbit, and the increase and decrease in the storms in the magnetic field surrounding the earth. The sun spots and associated prominences are readily given as the reason for these phenomena, but according to Dr. Menzel they may be only the outward sign of something more important occurring in the sun and not yet observed.

Others who have broadened our knowledge by their wealth of information in their special fields were Dr. Leah B Allen, Williams Observatory, Frederick, Maryland; Professor Duncan, Director of Whittin Observatory, Wellesley College; Dr. Frederick Slocum of Wesleyan University; Dr. Arthur M Harding of the University of Arkansas; Mr. Charles A Federer, Editor of *Sky & Telescope*; Dr. Alice Farnsworth of Mt. Holyoke College; Dr. Cecilia Payne Gaposchkin, Harvard Observatory; and many other speakers of note from Brown University and Rhode Island College of Education and the University of Rhode Island.

In addition to these lectures sponsored by Skyscrapers, there have been the Colver Lectures of Brown University and lectures in the field of astronomy sponsored by the Brown Chapter of Sigma Xi. Several times each year members of our own club gave book reports or talks about planets, lives of astronomers and also talks on subjects of a more technical nature. In the minutes of the meeting of January 8, 1941 we find the comment of one of the members, "In spite of the many fine visiting speakers we have had, our local talent proved to be the best."

Movies have been a source of information and entertainment. Among these were "Operation Crossroads" about the atomic bomb test at Bikini; "Mt. Palomar"; "The Chubb Crater" in Labrador; a movie of the recent experiments in rocket-firing at White Sands, New Mexico, and "Our Mr. Sun".

The work of our members has not been without recognition. On May 6, 1952 Provost Samuel T Arnold named Frederick W Hoffman, engineer; Mary H Quick, mathematics teacher and Donald S Reed, architect, as associates in the Astronomy Department at Brown University. In January, 1957 Ralph C Patton, present president of Skyscrapers, Inc.; Clifford W Brown and Donald S Reed, both past presidents of Skyscrapers, Inc., were elected members of the British Astronomical Association.

Skyscrapers, Inc. has not only enjoyed working together but has always

taken pleasure in sharing its observatory on Peep Toad Road with the public. Many groups have been received there to learn and be entertained. Classes from elementary, junior and senior high schools and from the Rhode Island College of Education have visited and used the telescope in the dome and on the lawn.

Church and PTA groups have made a visit to the "star club" a part of their year's program. Boy Scout and Girl Scout troops, Camp Fire Girls, Field Naturalists, Appalachian Club and groups from business firms such as Brown & Sharpe also have enjoyed evenings at Seagrave.

Other amateur astronomy clubs have often joined with the Skyscrapers to observe and to talk over subjects of common interest. On one occasion exchange teachers from Hawaii were invited to see a lunar eclipse. They were greatly excited at seeing a display of Northern Lights on the same evening.

In all, it is estimated that the register in the observatory office records some six thousand signatures, representing visitors from most of the forty-eight states.

The first "Neighborhood Night" was held at Seagrave on Friday, September 26<sup>th</sup>, 1952. Approximately one hundred fifty persons attended. Invitations were given personally to close neighbors on Peep Toad Road and vicinity by Mr. and Mrs. Stevens with the help of neighbor Budlong, and Mrs. Bertenshaw invited those who lived in her part of the town. Posters were made and placed in the windows of the Post Office, grocery and drug stores in the village.

The program was planned to be quite informal and flexible. A short talk was given by Dr. Smiley on the "History and Ideals of Skyscrapers". Guests were invited to use the telescope. The dome was in charge of Mr. Newmarker and the telescope on the lawn was manned by Mr. Penhallow. In the assembly hall moving pictures of wild life were shown by Mr. Gairlock. These were especially enjoyed by the children. Refreshments were served. Due to the popularity of "Neighborhood Night" it has been repeated a number of times.

Through the years Skyscrapers have served the community in many ways. They have assisted on Star Nights at the Park Museum, have visited schools to interest and inform the younger generation, and have welcomed friends and neighbors to their homes to use their own telescopes. They have given radio talks and have appeared on television. A number of the members contributed to the National Defense by doing optical work for the War Department.

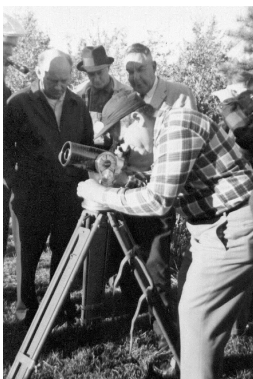
In these ways Skyscrapers have done their bit to spread a knowledge of astronomy for, as Dr. Smiley once remarked, "a public well informed about astronomical affairs is an asset to a community".



Third Skyscrapers Astronomical Convention, now known as AstroAssembly, at Seagrave Memorial Observatory, October 6, 1956.



Left: Connie & Cliff Brown, October 1, 1955. Right: October 10, 1955 2.4" and 3" Unitron telescopes set up for display; Below: John Hopf, 1955



## THE SCHMIDT CAMERA Smiley/MacKnight/Reed/Hoffman

In the Spring of 1935, Professor Smiley decided that Ladd Observatory should have a Schmidt Camera but not only were there no Schmidt cameras on the market, but no one would build one to order. He approached three friends, enthusiastic Skyscrapers and amateur telescope makers, with his problem. Would they help him build a Schmidt Camera? These men, all busy with their own vocations, said they would, and they devoted hours and weeks to a job that some of the nation's chief optical companies refused to do.



Schwarzschild camera (see next section) with Schmidt Camera attached.  
Eclipse expedition, May 20, 1947, Araxa, Brazil

They started virtually from scratch, doing something which had never been done before, the creation of the fastest astronomical camera ever built. For several years, Professor Smiley had been studying the mathematical calculations, such as the angles of the lens, the type of film, and the spherical mirror, of a Schmidt camera. The late Bernhard Schmidt of Hamburg, Germany, had perfected in 1932 a combination reflector and refractor camera, or photographic telescope, whose chief advantages were its large useful field and its extremely rapid focal ratio or lens speed. As Schmidt did not tell much about his camera except that the mirror should be spherical and that the lens, or correcting plate, must be placed at the centre of curvature, it was up to Professor Smiley to go on from there.

The three Skyscraper friends who assisted Professor Smiley in the creation of this remarkable camera were Mr. Harry A. MacKnight, a mechanical engineer; Donald S Reed, an architect; and Frederick W. Hoffman, a florist and electrical engineer.

To Mr. MacKnight fell the job of producing the metallic parts of the camera. He built a machine fitted with a Borium point, and Mr. Reed ground and polished the mirror to within 1/100,000 of an inch. Mr. MacKnight also designed and built a machine to grind the corrector plate, which was the only one of its kind in the world. This machine was fitted with an abrasive

wheel especially manufactured for it, which can be raised from, or lowered to, the lens  $1/40,000$  of an inch at a time. The machine was fitted with a gauge reading to  $1/10,000$  of an inch for use in testing the plate as the work progressed. Mr. Hoffman had the task of constructing a proper mounting and clock drive for the camera.

The Schmidt f/1 Camera, made mostly of aluminum, was very light, the matter of weight being an important consideration in building it. The clock-like mechanism had been designed so that the camera could be turned automatically in time with the sun's movements across the sky while an eclipse was under way.

This camera was built to record a field of 20 degrees in place of the less than 1 degree that is the maximum scope of the reflector type camera. The light does not pass through the lens directly to the film. The rays rather are drawn through the 4 inch lens to a spherical mirror, 6 inches in diameter, at the back of the camera. From the mirror, the rays are recorded on a 1 inch film. The camera has a 4 inch aperture and a 4 inch focal length, with a focal ratio of f/1.

The most delicate part of constructing this camera was the grinding and polishing of the lens and mirror. The special abrasive machine ground and polished the Pyrex glass mirror and lens to within  $1/1,000$ th of an inch of perfection. The final touches of polishing the lens with rouge brought the lens to within 1 one-millionth of an inch of perfection. Tests were made of the completely polished surface, using a wavelength of light for detecting possible flaws. Color filters can be used to eliminate all but the more direct red rays of the sun.

The lens was ground from a piece of glass imported from England; one-half inch thick, the specially constructed Borium tools cut microscopic hills and hollows in the lens. The mirror has an extremely deep spherical curve, graduating from the edge to a depth of six-tenths of an inch at its lowest point in the center.

Proper timing apparatus was necessary for the camera to move at a constant pace to record an eclipse accurately. A clock with complete jewel outfit was necessary. Mr. Hoffman found a 1917 automobile clock in Pawtucket, which was used for this accurate driving of the camera.

The skeleton of the camera, which supports lens, film holder and mirror, was made of invar steel. The tooling of the three uprights consumed more than 60 hours of fine machine work and they are impervious to temperature changes. An aluminum drum covers the camera proper, which is mounted on an upright bar which serves as an axis upon which the camera turns in



following the course of the sun.

Mr. Paul Eberhart of the Brown University Astronomy Department and Mr. Phillip G Newmarker also assisted in the construction of this camera.

This Schmidt Camera was completed and shipped to Professor Smiley one week before he was due to sail to Peru to observe the total solar eclipse of June 8<sup>th</sup>, 1937. He was in California on sabbatical leave, and anxiously awaiting the completion of the camera. He spent the last few days testing, focusing and adjusting the camera. Then on June 8<sup>th</sup> at Punta Callan in the Peruvian Andes, at an elevation of over 14,000 feet, he was successful in photographing the total solar eclipse with his special astronomical camera, built for him by Skyscraper friends, who worked for over a year to build the fastest astronomical camera ever built.

## THE SCHWARZSCHILD TELESCOPE/CAMERA

In an effort to photograph the outer corona of the sun and the zodiacal light around the sun in the total solar eclipse of October 1<sup>st</sup>, 1940, Professor Smiley and Brown University student Arthur Hoag, traveled to Curema in northeast Brazil. This expedition was jointly sponsored by Brown University and Skyscrapers, Inc.

They took with them the f/1 Schmidt camera of 1937, and a new Schwarzschild camera, the second of its kind in the world and a type of camera that had never been used before to photograph an eclipse.

This Schwarzschild-Telescope-Camera had an effective focal ratio of f/3.5, a focal length of 36 inches, and the optical parts consisted of 2 aluminized mirrors, the 12" diameter primary mirror and the 6" diameter secondary mirror. Both mirrors were concave, the primary approximately hyperboloidal and the secondary approximately ellipsoidal.

At f/3.5, this camera covers a field of 3 degrees in diameter and good round star images are given even near the edge of the field. As the focal surface is Hat, standard photographic film can be used in the plate holder.

When Professor Smiley had completed the data for the design of this telescope, he turned to the Skyscrapers for assistance. Arthur Hoag and Professor Smiley did the optical work, and three Skyscrapers, J Frank Morrissey, W Edwin Stevens and Harry A MacKnight, designed and built a fine special aluminum mounting.

Unfortunately the weather did not co-operate on eclipse day, October 1<sup>st</sup>, 1940, in Curema, Brazil, or later on May 20<sup>th</sup>, 1947 for the total solar eclipse at Araxa, Brazil, where the Brown University-Skyscrapers Expedition was set up all ready for its program.

Although the total eclipses have escaped the Schwarzschild camera, test films taken of stars and planets at the eclipse site at Curema, Brazil, by Professor Smiley and Arthur Hoag, and at Araxa, Brazil, by Mr. & Mrs. Donald S Reed, showed it to be an excellent camera with a splendid rugged equatorial mount, and the clock drive worked perfectly.

## EXPEDITIONS

During the past 25 years, Professor Charles H Smiley has led many Brown University expeditions, both to foreign lands and at home, to make scientific observations of the eclipses of the sun. He has also been the leader of several expeditions for the study of atmospheric refraction at low angular altitudes, this data being gathered for the Office of Naval Research as a basis for new tables for ship and plane navigation.

The Skyscrapers have played a vital part in these expeditions; many have been members of the expeditions and others have contributed generously in time, money and effort to make the expeditions a success,

### SWEDEN, MAINE: AUGUST 31, 1932

On their first eclipse expedition, ten Skyscrapers went to Camp Katahdin in Sweden, Maine, to co-operate with the Brown University Expedition to observe the total solar eclipse. The members of the party were Professor and Mrs. Charles H Smiley, Miss Wilhelmina A. Null, Miss Maribelle Cormack, Mr. Paul Eberhart, The Rev. John G Crawford, Mr. Ernest R Hager, Mr. Franklin S Huddy, and Mr. and Mrs. Philip G Newmarker. Although everything was in readiness to observe and photograph this total eclipse with cameras and spectrographs, clouds spoiled the eclipse.



Eclipse Expedition, Sweden, Maine. August 31, 1932. This was the first eclipse expedition in which Skyscrapers participated.

### CALLAN PASS, PERU: JUNE 8, 1937

After five years of preparation, Professor Smiley traveled by ship to Peru for this important eclipse, with totality lasting approximately 3 1/2 minutes. At his observing site at Callan Pass in the Peruvian Andes at an altitude of over 14,000 feet, he photographed the total eclipse of the sun with a new Schmidt f/1 camera.

This extraordinary camera, the fastest camera of its kind ever used on an eclipse expedition, was made for Professor Smiley by three Skyscrapers who worked at Ladd Observatory with the Professor. Harry A MacKnight designed and built machines to do the major part of the grinding and polishing; Donald S Reed was in charge of the fine optical work; and Frederick W Hoffman contributed work on the mounting. Philip G Newmarker also assisted in this work. In exposures taken with the Schmidt camera, there appeared a wedge-shaped light area around the sun which Professor Smiley was convinced was the zodiacal light. This was the first time that this light

had been photographed.

**THOMASTON, GEORGIA: APRIL 7, 1940**

Professor and Mrs. Smiley, Frederick W Hoffman and Arthur Hoag, a Brown University student, drove to Thomaston, Georgia, to observe this annular eclipse. Poor weather conditions with rain spoiled any observations.

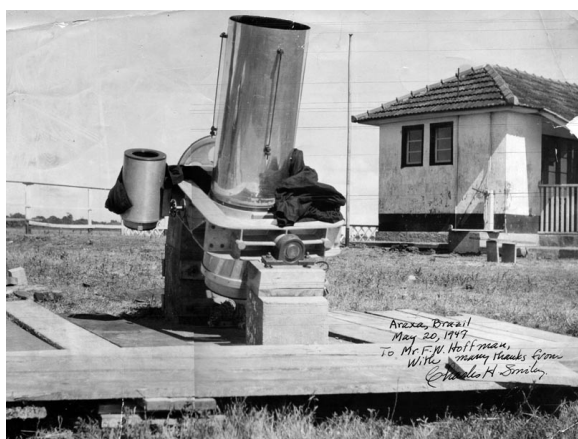
**CUREMA, BRAZIL: OCTOBER 1, 1940**

For this total solar eclipse, Professor Smiley and Arthur Hoag traveled by ship to northern Brazil where they established their headquarters at Curema. In addition to the Schmidt f/1 camera, they had a new Schwarzschild f/3.5 camera, second of its kind in the world, which was to be used in taking photographs in black and white and in color. Messrs. J Frank Morrissey, W Edwin Stevens and Harry MacKnight, all Skyscrapers, made the tube and mounting. Mr. Hoag made the optical parts. Clouds again prevented observation of this eclipse.

**MANITOBA: JULY 9, 1945**

For the fifth time in thirteen years, the Skyscrapers joined Brown University in sponsoring an eclipse expedition to Roblin, Manitoba, The party included Professor and Mrs. Charles H Smiley, Miss Mary H Quirk, Miss Evelyn Lindsey, Miss Priscilla Biron, Miss Wilhelmina A Null, Miss Maribelle Cormack, The Rev. William G Fagan and Mr. Frederick W Hoffman. Clouds prevented any photographs but visual photometers were used to measure the brightness of the overcast sky to obtain the times of second and third contacts of this total solar eclipse.

Fortunately the expedition had taken out insurance against such hazards as clouds and Lloyds of London paid them \$1,000 which was put toward the next eclipse expedition.



The Swarzschile camera with Schmidt camera attached; eclipse expedition to Araxa, Brasin; May 20th, 1947.

**ARAXA, BRAZIL: MAY 20, 1947**

Ten years after Professor Smiley had photographed the zodiacal light in the high Andes Mountains of Peru, he again led a Brown University-Skyscrapers Eclipse Expedition to South America to observe and photograph his sixth solar eclipse. The party of nine astronomers included Professor and Mrs. Smiley, Miss Mary Quirk, Miss Wilhelmina Null, Miss Maribelle Cormack, Miss Miriam Jolley and Mr. and Mrs. Donald S Reed, all Skyscrapers. After travelling 24 days on a slow Liberty ship from New York to Santos, the group set up their eclipse site in Araxa,

Minas Gerais, on the eastern edge of the central plateau of Brazil, about 4,000 feet above sea level.

One of the expedition's principal objectives was to verify the existence of the zodiacal light near the sun. The Schmidt f/1 camera, used in Peru in 1937 and in Brazil in 1940, and the Schwarzschild f/3.5 camera, used in Brazil in 1940, both cameras built by Skyscrapers, were used for this eclipse. The expedition had a third camera with a 4 inch lens to be used to photograph the contacts of the moon's edge with the edge of the sun. This camera, 11 feet long, was operated by Professor Walter L Moore, of the University of Louisville, Kentucky, Five visual photometers were also used.

Unfortunately a cold front was approaching Araxa, and eclipse day dawned cloudy and foggy. Totality was hidden so no photographs were taken with the eclipse cameras; the photometers were used to measure the brightness of the overcast sky. The clouds broke briefly allowing us several glimpses of the partially eclipsed sun. This was a bitter disappointment to us all after the days of hard work getting the concrete piers erected for the equatorial mount; the polar axis properly aligned; the cameras checked for focus; and the determination of the longitude and latitude of our site.

The expedition was successful in making a series of observations of atmospheric refraction at low altitudes for the Office of Naval Research on shipboard to and from Brazil. Over 15,000 observations of the sun were made from latitudes 42° North to 22° South, using five of the latest type Marine sextants.

#### **BANGKOK, SIAM: MAY 8-9, 1948**

Professor Smiley was in charge of the National Geographic Society expedition to Bangkok, Siam, to observe the annular eclipse of the sun. This was one of seven parties stationed in a line from Burma, Siam, China, Korea, Japan, and two stations in the Aleutian Islands. Of the 7 parties, Professor Smiley in Bangkok, and the group in Japan, had good weather and successful results.

#### **Brown University Refraction Program**

All participants in these expeditions were Skyscrapers.

#### **POINT BARROW, ALASKA: JULY 27 - AUGUST 18, 1949**

Professor Smiley traveled from Seattle, Washington, to Pt. Barrow, Alaska, and back to San Diego, California, aboard the USS George Clymer, measuring vertical diameters of the sun whenever the sun was at an altitude less than 10 degrees, About 2000 observations were made between latitudes 43° North and 71° North.

**LABRADOR: AUGUST 14 - SEPTEMBER 8, 1949**

While Professor Smiley was observing in Alaska, Mrs. Smiley, Miss Mary Quirk, and Mr. and Mrs. Donald S Reed, all Skyscraper members, flew to St. Johns, Newfoundland, where they made observations aboard the SS Kyle on the way to Hopedale, Labrador, and back. Approximately 3,900 vertical diameters of the sun at low altitudes were made between latitudes 48° North and 55° North.

**FLIGHTS OVER THE NORTH POLE: AUGUST 23 - SEPTEMBER 6, 1949**

With the assistance of the Air Weather Service, Professor Smiley made a series of observations with the 375<sup>th</sup> Air Weather Reconnaissance Squadron, making the Ptarmigan flight across the North Pole and back.

**MOUNT WASHINGTON, NEW HAMPSHIRE: AUGUST 15, 1950**

It has been planned to fly five observers by MATS (Military Air Transport Service) plane to Thule, Greenland, 76°30' North for one month to make observations in the far North. Unfortunately, this trip was cancelled because of the Korean War.

Instead, Professor and Mrs. Smiley, Miss Mary Quirk, and Mr. and Mrs. Donald S Reed went to the top of Mt. Washington, NH (6,300 feet above sea level) where they lived for ten days, making 8,000 measures of vertical diameters of the sun.

**PERU: JULY - AUGUST, 1951**

The Brown University Refraction Expedition, consisting of five Skyscrapers, Professor and Mrs. Smiley, Miss Mary Quirk, and Mr. and Mrs. Donald S Reed, flew to Lima, on July 3<sup>rd</sup>. They spent three weeks in the Black Andes of Peru working at an elevation of 14,350 feet at Punta Callan, where they made over 10,000 measures of atmospheric refraction. Professor Smiley said these observations were the best he had ever obtained, and completed the study of atmospheric refraction at low angular altitudes. This data had been gathered for the Office of Naval Research as a basis for new tables for ship and plane navigation.



Refraction Expedition, July-August 1951. Black Andes of Peru.

**CANADA / SWEDEN: JUNE 30, 1954**

This total solar eclipse was unusual because the path of totality crossed three continents, North America, Europe and Asia, and a good opportunity was available to continue the work of using the moon's shadow to determine the precise size and shape of the Earth. Professor Smiley had worked on this

problem at the eclipses of 1932, 1945, 1947 and 1948.

Brown University had three parties observing this eclipse. Three Brown students, Kenneth Kinsey, Roland Hathaway and Skyscrapers member John Royal, went to Mattice, Ontario, in the wilds of Canada. Mr. Donald S Reed, leader of the Sweden group, with Mrs. Reed, Mrs. Smiley and Miss Mary Quirk, all Skyscrapers, set up their eclipse camp at Natarn in the lake country of south central Sweden. Professor Smiley with Brown graduate student Lt. Chansuvan of the Royal Thai Navy, flew to Quetta, Pakistan, 6,000 feet above sea level. Each party carried the same equipment: a photo-theodolite with specially mounted 35mm motion picture camera with lens of 50" focal length; chronometer, chronograph and short wave radio for time signals.

After several weeks of careful preparation, clouds spoiled the observations for both the Canadian and Swedish parties; only Professor Smiley in Pakistan had cloudless skies and was successful in taking photographs with the special fast film.

Two Skyscrapers, Mr. J Frank Morrissey and Mr. Philip G Newmarker, made a trip to northern Canada for the purpose of photographing the total eclipse of the sun of June 30, 1954. They made their headquarters at Kapuskasing near the eclipse site of the University of Toronto.

Equipped with Leica camera and motion picture camera, they drove 11 miles to be within the shadow, but clouds and rain spoiled their observations.

#### **BANGKOK, THAILAND: JUNE 20, 1955**

This eclipse, called the Long Eclipse, was the most spectacular in more than fourteen centuries. In fact, it was unmatched by any other total eclipse since the year 717 and there will not be a better one until 2150. This was the reason that Professor Smiley went back to Bangkok, Thailand on his 10<sup>th</sup> solar eclipse expedition. With him were five Skyscrapers, veterans of many previous expeditions, Mrs. Smiley, Miss Mary Quirk, Mr. Frederick W Hoffman, and Mr. and Mrs. Donald S Reed, Three Brown students accompanied the expedition, Kenneth Kinsey (1954 Canadian expedition), Robert Burnham and Miss Judith Preston.

The main objectives of this expedition were the measuring of the brightness of the outer corona and of the zodiacal light near the sun, and accurate motion picture timing of the four contacts of the eclipse. Their equipment included an 11-foot telescope; 16mm motion picture camera with special timing devices, 35mm camera with telephoto lens, chronograph for time measurement, and photometers for measuring the brightness of the outer corona. The path of the total eclipse fell across Ceylon in the early morning,

then crossed Thailand later with the sun very high in the sky, and ended in the Philippines in the early afternoon.

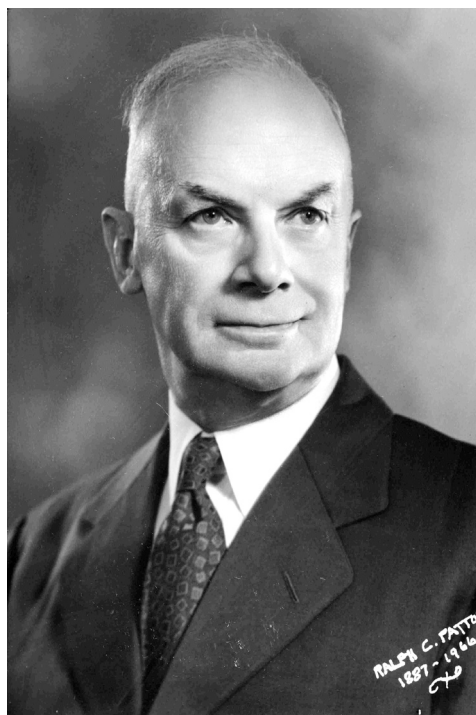
The Brown University group observed the eclipse at the Royal Summer Palace at Bang-Pa-In, about 35 miles north of Bangkok. This was a beautiful estate along the Chao Phya River and was the country residence of Siam's kings, The King's Mother, Princess Mahidol of Songkkla, officers of the Royal Thai Navy, and other dignitaries, joined our group in observing the eclipse. It was very gratifying to the members to have clear skies to observe this Long Eclipse of 6 minutes and 24.6 seconds of totality.



## RALPH CLIFTON PATTON

### President 1956-57

Ralph C Patton was born in New Orleans, Louisiana on the 10<sup>th</sup> of February 1887. His father, Dr. George Farrar Patton, was a physician and professor in the graduate medical department of Tulane University and later was head of the Louisiana State Board of Health. His mother was Clara May Simmons who died when her only child was three years old. In Patton's early childhood, his health was poor and he paid little attention to the world of interesting things about him.



When 10 years old, he was one of several hurt when a Mississippi River ferry-boat ran wild and crashed into a floating dock on which passengers were waiting. Rescuers picked him unconscious out of the soft mud of the river bank. Many people who knew him in later years considered this a mistake. The severe blow on the head imparted by the ferry seems to have awakened him to an awareness of the fascinating events occurring outside the family circle.

While recuperating on his grandfather's farm, Patton happened on a copy of "Steele's 14 Weeks Course in Astronomy." From that moment, interest in the farm ceased and nothing seemed quite as important as the starry sky.

After returning to New Orleans, Patton, about 11 years old, made a crude telescope from a piece of discarded organ pipe and two lenses removed from his father's long focus camera, while the father was away on a trip. The little lens taken from the finder of the camera made a fair eyepiece and the rear element of the main lens served as the objective. The drawtube was formed by wrapping a piece of paper, wet with shellac, around a broom stick and removing the latter in the nick of time. The telescope was held loosely to the back of a straight back chair by a carpenter's wood clamp. The observer sat on the floor or squatted down on his haunches, but that is no trouble when you are 11. The instrument was very useful for observing weather vanes and for looking in neighbors' windows as well as for observing the moon, Jupiter's satellites and the Pleiades. The false color effect was beautiful.

The apparent motion of celestial objects across and out of the field proved troublesome, but the principal observer became quite expert at kicking the chair just enough to compensate for the earth's rotation.

Early education was obtained at the "University School," so named in order that the initials "U.S." could be put on the collars and caps of the uniforms. During this period, an experiment with explosives almost cut short the student's career. After growing a new set of fingernails, new skin on face and hands and new hair and eyelashes, the search for knowledge continued.

Four years were spent in the engineering department of Tulane University, during which weighty problems were studied, such as the best way to paint class colors on the tower water tank on a dark night and how to attach a class banner to the top of a smoke stack 125 feet high.

Among the indiscretions of the college period was learning to play the trumpet, or almost learning to play it, in the band.

In order to get a summer job between junior and senior years, Patton passed a civil service examination and emerged as an assistant surveyor on a US government surveying expedition destined to chart the lower reaches of the Mississippi River and neighboring swamps. This work brought Patton into intimate association with government civil engineers, uncivil engineers, bees, wasps, hornets, mosquitoes, alligators, rattlesnakes, moccasins, poison ivy and malaria germs. A great deal was learned that summer,

To the surprise of family and friends, in 1907 Patton was given the degree of BE by Tulane. To their astonishment, he was awarded the master's degree in electrical engineering two years later.

Patton and his buddy could not decide whether to go to work in New Orleans or to try for a job with the General Electric Company in Schenectady, New York. They called on lady luck to decide this for them by tossing a coin. If heads came up three times out of five they would seek their fortune in the East; if tails prevailed, they would stay in the deep South. The momentous toss was made, and heads came up three times straight. Lady luck was sure of herself that day. They bought tickets for New York within the hour, just in case any parent should want them to be reasonable about the matter.

In Schenectady, they worked in the testing and research departments of the General Electric Company. Patton had another close call there in a high voltage flare up, but he escaped only slightly singed.

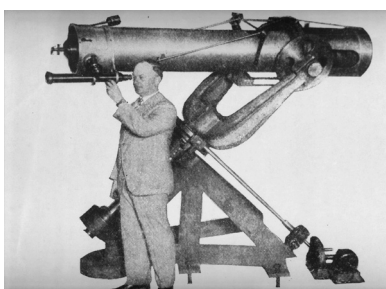
The next position was with the Electrical Testing Laboratories in New York

City, and in 1910 the move was made to Providence, as electrical engineer of the D & W Fuse Company

In 1912, Patton married Miss Carolyn Tillinghast Parker who claims to have captured a rebel single handed. They had one child, Carolyn, in 1915. She is now Mrs. Thurston Steele and has three sons of her own.

Among adult indiscretions should be included taking saxophone lessons. Patton played in amateur groups and on radio station WEAN in duets and sextets with other misguided saxophonists. His other hobbies were sailing and taking colored motion pictures in foreign countries. These pictures he shows in public on the slightest provocation and will lecture with them if given the least encouragement. Watch out for this.

In 1917, Patton, resigned from the D & W Fuse Company and incorporated the Patton-MacGuyer Company with Mr. Herman F MacGuyer.



He designed and largely constructed a 12-inch reflecting telescope in 1929. This equatorially mounted instrument is housed in a sliding roof observatory on the roof of his factory. Before the Cold War, a copy of the Patton telescope was made from his drawings by the Russians and was mounted in a small observatory in Neish Neish Novgorod.



When not making a living or a telescope, or traveling, or sailing, or playing the saxophone, Ralph C Patton used to invent things, a few of which were commercially successful. Patents have been issued to him on a lifting jack, a thermally controlled valve, a viewfinder for cameras, an electric fuse, a wire terminal and a magnetic chuck.

At present, Ralph C Patton is Chairman of the Board of the Patton-MacGuyer Company., Secretary of the General Fittings Company., and Secretary of the Cady Company. He is a director of these companies and of the Electric Terminal Corporation. He has been Senior Warden of a church for twenty-five years, and is a member of the American Institute of Electrical Engineers, the Providence Engineering Society, the British Astronomical Association, the AAVSO, the Turks Head Club, the Pi Kappa Alpha Fraternity, and most important of all, the Skyscrapers.

When asked whether he could summarize his 70 years of life very briefly, he replied "Gee! it has been a lot of fun."

## APPENDIX A

### 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 Ulsted  
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

## **APPENDIX B**

### **Officers 1957-1958**

President	Mr. Ralph C Patton
1 <sup>st</sup> Vice-President	Mr. John L Euart
2 <sup>nd</sup> Vice-President	Miss Jennie Deebo
Secretary/Treasurer	Mr. Howard W Preston
Members at Large	Mr. George E Gregory Capt. Clarence Dench, USCG, Ret.
Trustees	Mr. J Frank Morrissey Mr. Ernest R Hager Mr. Arthur Howarth

# APPENDIX C

## Members 1957-1958

I Incorporator  
C Charter Member

180 Miss Margaret F Babcock	198 Mr. George E Gregory	206 Mrs. Philip G Newmarker
C Miss Mary F Babcock	I Mr. Ernest R Hager	7 Mrs. Elsie Newmarker
144 Mrs. Carrie L Bertenshaw	C Mrs. Ernest R Hager	C Miss Wilhelmina A Null
11 Mr. Roy K Bilsborough	173 Mr. Raymond F Havens	I Mr. Ralph C Patton
126 Mr. Albert M Blackwell	113 Dr. Charles Hetzier	96 Mr. William Penhallow
129 Mrs. Albert M Blackwell	81 Mrs. Hannah W Hickey	97 Mr. Charles M Perry
C Mr. Lewis J Boss	140 Miss Margaret Hickey	C Miss Angeline M Pettey
158 Mr. Eugene C Bowie	82 Miss Mabel G S Hirst	84 Dr. Edgar S Potter
159 Mr. Edward W Bradford	C Mr. Frederick W Hoffman	183 Mr. Howard W Preston
154 Mr. Clifford Brown	9 Mrs. Frederick W Hoffman	136 Mr. Louis C Ray
155 Mrs. Clifford Brown	128 Mr. Joseph E Holgate	C Mr. Donald S Reed
193 Mr. Domenico Bucci	123 Mrs. Joseph E Holgate	I Mrs. Donald S Reed
196 Mr. Malcolm L Biease	C Mr. Samuel Holman	187 Mr. Daniel Raiche
197 Mr. Alfred L Biease	125 Mr. Elmer C Hornsby	76 Mr. Edmund K Ryan
42 Mr. Augustus W Calder	130 Mr. Harry A Hughes	99 Mr. Harry A Sanderson
10 Mrs. George H Capron	131 Mrs. Harry A Hughes	111 Mrs. Harry A Sanderson
186 Mr. Charles Capwell	170 Mr. G Edward Hyske	18 Mrs. George L Sawyer
161 Dr. Jarvis D Case	107 Miss Elizabeth Hawes	I Dr. Charles H Smiley
162 Mrs. Jarvis D Case	C Mrs. Helen Holmes	C Mrs. Charles H Smiley
67 Miss Norma C Castiovillari	191 Mr. Arthur Howarth	C Dr. Byron N H Smith
I Miss Maribelle Connack	192 Mr. James W Hanner	C Mrs. Byron N H Smith
70 Miss Esther Cotton	49 Mr. Frank E Jencks	63 Mr. Walter J B Smith
195 Mr. Charles E Cornell	50 Mrs. Frank E Jencks	46 Mr. W Edwin Stevens
207 Mr. Arthur E Crowe, Jr.	25 Mr. C Bird Keach	103 Mrs. W Edwin Stevens
208 Mrs. Arthur E Crowe, Jr.	127 Mrs. C Bird Keach	147 Mr. Robert C Sullivan
142 Miss Maria Deharros	166 The Rev. Philip Kierstead	190 Miss Virginia Scanlon
149 Miss Jennie Deebo	187 Mr. John R Kellam	205 Mr. Irving C Sheldon
151 Capt. Clarence Dench	73 Miss Harriet L Laird	150 Miss Celia Tourtelot
72 The Rev. Francis B Downs	152 Mr. Duncan Langdon	104 Rear Admiral Scott Urnsted, USN Ret.
80 Miss Aimee F Draper	153 Mrs. Duncan Langdon	185 Mrs. Julia Veitch
61 Mr. Wilfred Duphiney	31 Mrs. George McCahey	175 Mr. Lloyd Wackerling
145 Miss Beulah Earnes	182 Miss Doris McElroy	163 Mr. J Robert Wahiberg, Jr.
17 Mrs. J Danforth Edwards	184 Mr. Galien D McIntosh	164 Mrs. J Robert Wahiberg, Jr.
C Mr. John L Euart	30 Miss Mary C McLaughlin	137 Mr. William F Walport
64 The Rev. William G Fagan	59 Mr. Alden Marshall	156 Mr. John E Warwick
65 Mrs. William G Fagan	181 Miss Margaret M Messier	157 Mrs. John E Warwick
37 Mr. Frank X Farrell	121 Mr. Roy T Moone	90 Mr. Clinton N Williams
204 Mr. J Norman Farrell	132 Mrs. Roy T Moone	171 Mr. D Douglas Wilson
C Mr. Stanley S Gairlock	165 Mr. Leonard Mooy	122 Mrs. Bernice M Wray
C Mrs. Stanley S Gairlock	C Mrs. Elizabeth Morpeth	139 Mrs. John Wilson
169 Miss M. Patricia Gardner	45 Mr. J Frank Morrissey	199 Mr. Waldo G Witherell
22 Mr. William J Gardner	95 Mrs. J Frank Morrissey	200 Mrs. Waldo G Witherell
117 Mr. William Green	194 Mr. Joseph H Machado	172 Mrs. Albert Zurlinden
118 Mr. Arthur L Guerin	201 Mr. Raymond A Mathieu	202 Mr. Edward Zezulewicz
189 Miss Mary Gildea	C Mr. Philip G Newmarker	203 Mrs. Edward Zezulewicz