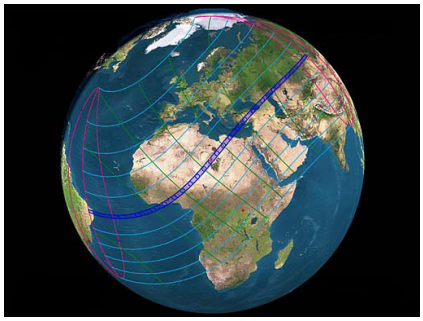
SUMMER.QUARTER/JUNE.2006
MOUNT WILSON OBSERVATORY ASSOCIATION
REFLECTIONS

MWOA PUBLIC LECTURE — SUNDAY, JUNE 25

THE SOLAR ECLIPSE OF 29 MARCH AS VIEWED FROM SILLON, TURKEY

Join us at the Altadena Library on Sunday, June 25, at 2:30 P.M., when **BILL GREEN**, who spoke to us last year on Mount Wilson's geology, will describe his trip to Turkey to view the total eclipse of the Sun.

The Altadena Library is located at 600 E. Mariposa Street in Altadena, two stop signs west of Lake Avenue at the corner of E. Mariposa Street and Santa Rosa Avenue. Refreshments are served beginning at 2:00 P.M.

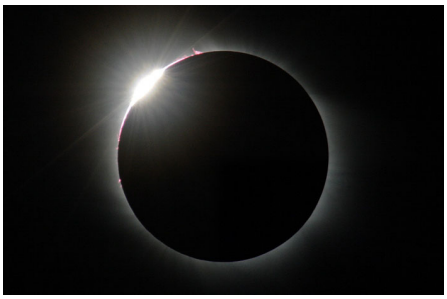


NASA

ECLIPSE PATH

The March 2006 total eclipse of the Sun was visible from within a narrow corridor traversing half the Earth. The path of the Moon's umbral shadow began in Brazil and extended across the Atlantic Ocean, northern Africa, and central Asia, ending at sunset in northern Mongolia. Figure from "Total Solar Eclipse of 2006 March 29," F. Espenak and J. Anderson, NASA/TP—2004–212762. For more information on eclipses, see sunearth.gsfc.nasa.gov/eclipse/eclipse.html.

ODD HØYDALSVIK



FROM BELOW

Seen from Manavgat, Turkey: diamond ring just before totality. See more eclipse photos from this photographer at www.hoydalsvik.net/astrofoto/eclipse2006/eclipse_2006.html.

NASA / EXPEDITION 12 ISS CREW

FROM ABOVE

The shadow of the Moon falls on Earth as photographed from the International Space Station at about 4:50 a.m. CST on Wednesday, March 29.

FEATURED IN THIS ISSUE

CALENDAR

Sunday, June 25, 2:30 P.M.
MWOA Public Lecture

★ Altadena Library, 600 E. Mariposa St., Altadena. Bill Green on *The Solar Eclipse of 29 March As Viewed from Sillon, Turkey.* Refreshments at 2:00 P.M.

MWOA 60-inch Observing Nights

★ For Sustaining Members; reservations required. June 24, July 29, August 26, September 23, and October 21. All are New Moon Saturdays. To become a Sustaining Member, see page 2.

MWOA 2006
Public Lecture Schedule

★ Sundays, 2:30 P.M. at the Altadena Library: June 25, July 23, August 27, September 24, October 22, and November 26. More information in future newsletters, or visit our website at www.mwoa.org.

ABOUT MWOA

The Mount Wilson Observatory Association (MWOA) is a support group made up of friends of the Mount Wilson Observatory. MWOA is a nonprofit California corporation, independent of the Mount Wilson Observatory and the Mount Wilson Institute, which operates the Observatory. MWOA's goals include increased public awareness of the Observatory's unique history and continuing scientific contributions, as well as improvement of the quality of public access at Mount Wilson.

★

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Mount Wilson Institute Website
www.mtwilson.edu

REFLECTIONS

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For the use of historical photographs of Mount Wilson, MWOA thanks the Observatories of the Carnegie Institution of Washington, the Huntington Library, and Don Nicholson.

PAGE ONE BANNER PHOTOGRAPH

The 100-inch telescope dome at Mount Wilson.

MWOA NOTES

Astronomers Convene in Calgary

The American Astronomical Society (AAS) held its 208th semiannual meeting June 4–8 in Calgary, Alberta, Canada. At the meeting, the George Ellery Hale Prize was awarded to Peter A. Gilman for outstanding contributions to the field of solar astronomy. Gilman, a long-time collaborator with solar astronomers at Mount Wilson Observatory, works at the High Altitude Observatory of the National Center for Atmospheric Research (HAO/NCAR) in Boulder, Colorado. On June 5 (the same day that two CHARA poster papers were presented — see abstracts on page 3), the Hale Prize Lecture [presentation 31.01] was given by Gilman on "A 42-Year Quest to Understand the Solar Dynamo and Predict Solar Cycles."

Three days later, Gilman (along with his collaborator at HAO/NCAR, Mausumi Dikpati) gave a presentation on "Simulating and Predicting Solar Cycles Using a Flux-transport Dynamo" [65.07]. They have developed a predictive tool based on a Babcock-Leighton–type flux-transport dynamo model of the 11-year solar cycle. With it, they are able to simulate the relative peaks of the past 8 solar cycles, and they predict that the next solar cycle will be 30–50% stronger than the current cycle!

The Hale Prize was established in 1978 in honor of solar astronomer and Mount Wilson [Solar] Observatory founder George Ellery Hale. Past recipients include Mount Wilson astronomers Horace W. Babcock (1992) and Robert F. Howard (2003). There will be a reprise of the 2006 Hale Prize Lecture on June 29 at the AAS Solar Physics Division annual meeting to be held June 25–30 in Durham, New Hampshire.

More on the recent Calgary meeting and other AAS matters can be found at www.aas.org.

Plaque Dedicated to Honor Jon Hodge

At a ceremony May 19 at Santa Monica College, a plaque was dedicated honoring the late Director of Santa Monica College's Drescher Planetarium, Jon Hodge. The 10-by-15-inch plaque, created largely through the efforts of the Santa Monica Amateur Astronomy Club (SMAAC), will be mounted in a display case outside the Planetarium on the second floor of Drescher Hall.

In his opening remarks at the ceremony, Thor Dockweiler, SMAAC President, said: "Few people are masters that can instill passion and a quest for knowledge. Jon Hodge was one of these." This thought is echoed in these words inscribed on the plaque: "For over 25 years his creative vision took us to the stars and beyond."

Don't Fall Off Our Mailing List!

Check the mailing label on this issue of Reflections to see when your MWOA membership expires. Use the renewal form on page 8. Renew promptly to assure continuing member benefits. We hope you'll stay with us — at $20/year for the basic membership, we're the best bargain in town.

MWOA Membership Benefits

A membership form may be found on page 8.

Associate, $20 — Includes newsletters (*Reflections* and *OverView*) plus participation in MWOA member events such as tours, an Open House at Mount Wilson, and lectures.

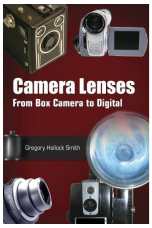
Family, $30 — Permits family members in your household to participate in MWOA events.

Sustaining, $100 — Includes all of the above, plus invitations to participate in special events, such as observing nights on the 60-inch telescope.

BOOK REVIEW — *by* Bob Eklund

Camera Lenses: From Box Camera to Digital

by Gregory Hallock Smith



This book is an exploration and appreciation of cameras and their optics, covering all major lens types from the earliest to the most recent, including those used in roving the surface of Mars. A recurrent theme is that lens types invented in the 19th century are just as useful in the 21st century. Another continuing theme is the impact of the digital revolution and the use of imaging in radically new circumstances.

Through 320 pages and 31 chapters, the book guides us into topics ranging from the nature of light and the first recording of it, through the history of photography, the nature of cameras, the basics of camera lens design, CCDs and the limits of image sensors (both silver and silicon), choosing your camera, evaluating camera-lens performance, astrocameras, and wide-screen movie systems — to name only a few of the fascinating chapter headings. For many people, the final chapter, "The Mars Rover Camera Lenses" (based on the author's experience as designer of the rovers' optics) would alone be worth the price of the book. The book ends with a "Timeline of Advances and Milestones" and an appendix on "Optical Prescriptions."

Greg Smith's information-packed book — both a valuable technical resource and a fascinating reading experience — reflects a lifelong interest in photography and cameras that dates from as early as age 9 and took off in earnest when he received his first good camera, a Zeiss Contaflex, at age 15.

In addition to his ongoing professional work as an optical engineer and lens designer, Greg has also had a lifelong fascination with astronomy, going back to an 8th-grade general science class. Raised in Pasadena, he first visited Mount Wilson in 1954. By 1961 he was observing with the 60-inch telescope and later, in 1977, he observed with the 100-inch. He has been a MWOA member since 1983, and MWOA's Treasurer and Board of Trustees member since 1985.

Greg has a B.A. in astronomy from the University of California, Berkeley, an M.S. in engineering from UCLA, and a Ph.D. from the Optical Sciences Center at the University of Arizona. Although his doctoral dissertation concerned image intensifiers, his subsequent professional work at several major corporations and research institutions has been primarily in optical engineering and lens design. His experience ranges over such areas as photographic and imaging techniques, telescopes and astronomical instruments, optics for military and NASA spacecraft, and optics education.

In 2000, Greg was invited by JPL to design the camera lenses for the Mars Exploration Rovers, which have been taking pictures on Mars since January 2004. He has previously written a book on lens design, *Practical Computer-Aided Lens Design* (1998).

Camera Lenses: From Box Camera to Digital was published in April 2006 by the International Society for Optical Engineering (SPIE). Hardcover, 320 pages: $72 ($61 to SPIE members). The website is bookstore.spie.org/index.cfm?fuseaction=DetailVolume&productid=660181.

CHARA Research at Mount Wilson

Following are abstracts of two poster papers on research performed with Mount Wilson Observatory's CHARA Array. They were presented at the semiannual meeting of the American Astronomical Society (AAS), June 4–8, 2006, in Calgary, Alberta, Canada.

Interferometric Measurements of the A-Type Supergiant Deneb with the CHARA Array (Presentation Number 6.01)

Jason P. Aufdenberg[1], A. Mérand[2], S. T. Ridgway[1], V. Coudé du Foresto[3], P. Kervella[3], D. Berger[4], J. Sturmann[2], L. Sturmann[2], T. A. Brummelaar[2], N. H. Turner[2], H. A. McAlister[2]

[1]NOAO; [2] CHARA Array; [3]LESIA, Observatoire de Paris, France; [4]University of Michigan

We have obtained precise interferometric measurements of the A-type supergiant Deneb (A2 Ia) at the Center for High Angular Resolution Astronomy (CHARA) Array in the infrared K′ band (1.94 to 2.34 microns) using the Fiber Linked Unit for Optical Recombination (FLUOR). Our observations were obtained over 20 nights in 2004 and 2005 with five telescope pairs E2-W2, W2-S2, W1-E2, E1-W1, and S1-W2. The projected baselines span 106 to 312 meters and sample the first and second lobes of Deneb's visibility curve. Our preliminary analysis reveals that the amplitude of the second lobe of the visibility curve is weaker than that predicted by a spherical hydrostatic model atmosphere. We also find that Deneb's angular diameter varies with position angle at the level of a few percent. We will present these data and discuss our analysis using a unified expanding model atmosphere and a rotationally distorted model atmosphere.

This work was performed in part under contract with the Jet Propulsion Laboratory (JPL) funded by NASA through the Michelson Fellowship Program. JPL is managed for NASA by the California Institute of Technology. The CHARA Array is operated by the Center for High Angular Resolution Astronomy, Georgia State University, Atlanta, GA. Additional support comes from the National Science Foundation, the Keck Foundation and the Packard Foundation.

Interferometric Observations of the Extrasolar Planetary System ρ Corona Borealis with the CHARA Array (Presentation Number 9.05)

Ellyn K. Baines[1], H. A. McAlister[1], D. R. Gies[1]

[1]Georgia State University

The star ρ Coronae Borealis (ρ CrB, HR 5968, HD 143761, type G0 V) was discovered by Noyes et al. (*ApJ*, 483, L111, 1997) to contain a low-amplitude radial velocity variation that they attributed to a Jupiter-mass companion. On the basis of ground-based and HIPPARCOS astrometry, Gatewood, Han & Black (*ApJ*, 548, L61, 2001) concluded that the companion is more likely a late M dwarf star orbiting in a nearly face-on orbit. We report observations of ρ CrB made with the Georgia State University Center for High Angular Resolution Astronomy (CHARA) Array, a six-element optical/infrared interferometer located on Mount Wilson, California. The star was observed using the 156-m E2/W2 baseline on 2005 March 12, June 29, and July 3 along with the calibrator star HD 143393 (K2 III, V = +7.1) at an angular distance of 3.9 degrees from the target star using the standard Calibrator-Target-Calibrator bracketing for calibration purposes. All data were obtained with the "CHARA Classic" beam combiner in the K′-band infrared. These data shed new light on the nature of the companion.

ANDREW CARNEGIE VISITS MOUNT WILSON

AS RECOUNTED IN NEWSPAPERS OF THE TIME

— *by* Marilyn Morgan

Andrew Carnegie, benefactor of the Mount Wilson Solar Observatory, paid a visit to Southern California six years after the observatory's 1904 founding. George Ellery Hale had moved his Yerkes Observatory staff to Mount Wilson, installed the Snow solar telescope and constructed the 60-foot solar tower, and set up machine and optical shops in Pasadena. The 60-inch telescope would see first light in December 1908. Meanwhile, the ever-visionary Hale had placed an order for a 100-inch disk from Saint-Gobain glass works in September 1906. John Hooker, a wealthy industrialist, had promised $45,000 for the mirror, but Hale had no funding commitment for its mounting. The huge disk was received in Pasadena on the day the 60-inch mirror was set in place — December 7, 1908. But, disappointingly, the 100-inch glass appeared flawed and it was rejected. In February 1910, a cablegram arrived from Saint-Gobain stating that a second 100-inch glass disk had been cast. The disk had been buried in a manure pile for annealing. There was nothing to do but wait anxiously for more news from France. The great light-gathering promise of a 100-inch telescope must have seemed in peril to Hale.

At this critical juncture, Andrew Carnegie cheerily came to call in March 1910. Carnegie was greeted warmly by local luminaries and followed about avidly by newspaper reporters, who referred to him as the "Iron Master" and the "Steel King."

ANNANDALE — MARCH 16, 1910

The *Star News* reported on a luncheon honoring Carnegie: IRON MASTER GUEST AT ANNANDALE COUNTRY CLUB, GETS OVATION. When "the Laird of Skibo" (Skibo was Carnegie's beautiful estate in Scotland) entered the dining room, "two Scotch bag-pipers dressed in full costume followed him, playing some of the characteristic airs. The old Scot seemed much pleased and the entire company applauded delightedly." At Carnegie's table were the directors of the Annandale Country Club and the Pasadena Board of Trade, George Ellery Hale, J. A. B. Scherer of Throop Polytechnic Institute, J. D. Hooker, and the mayor of Pasadena.

The mayor thanked Carnegie for setting a philanthropic example by his establishment of libraries and the Mount Wilson Observatory. George Hale welcomed Carnegie on behalf of the observatory and commented with favor on the Carnegie Institution's support for scientific research. Hale noted that astronomy, while it "has considerable value in navigation and elsewhere...has more important work; it teaches us that we are not the center of the universe. We are merely part of a whole. That is its greatest value."

Carnegie addressed the 300 or so attendees as well. A photograph in one newspaper shows Carnegie wearing in his lapel a rather large sprig of flowers. He explained, "As I came in I was greeted by a dour lady who placed in my buttonhole a bunch of heather raised in her own garden, and who said it was given lovingly from her heart." Other photos of Carnegie taken at Annandale show that he continued to wear the heather sprig throughout the day.

Carnegie was presented with a gold-plated golf club — a duplicate of one given to President William Howard Taft — at the luncheon. Afterwards, Carnegie tried out the new club on the country club's links, making a "vigorous drive, despite the lameness resulting from his fall on the ice of an eastern pavement."

POSTPONEMENT ON ACCOUNT OF WEATHER

Carnegie was scheduled to visit Mount Wilson on March 17. However, a New York newspaper reported on March 18 (in a story datelined March 17) that "a driving rain on the summit of Mount Wilson caused a postponement of ...the trip to the observatory to see Halley's comet to-day, but at the same time it afforded [Carnegie] an opportunity to inspect the machinery and appliances in the [observatory's] laboratory on Santa Barbara Street, Pasadena."

The Carnegie party was to travel by automobile to "...the foot of the trail in Eaton's Cañon, [where] they will be transferred to the big mountain wagons in which the climb trip will be made. ...They will occupy eight of the Mt. Wilson cottages and will take their meals in the hotel. ...While in the observatory, Mr. Carnegie will be given an opportunity to view the heavens and take a good peep at Mars, which Prof. Hale alleges

Andrew Carnegie was greeted with delight by the elite of Pasadena. At a luncheon at the Annandale Country Club, he was presented with a "gold-mounted golf club."

This charming photo of an arm-in-arm Carnegie and Hale was taken following the luncheon at the Annandale Country Club. Hale is carrying the golf club presented to Carnegie.

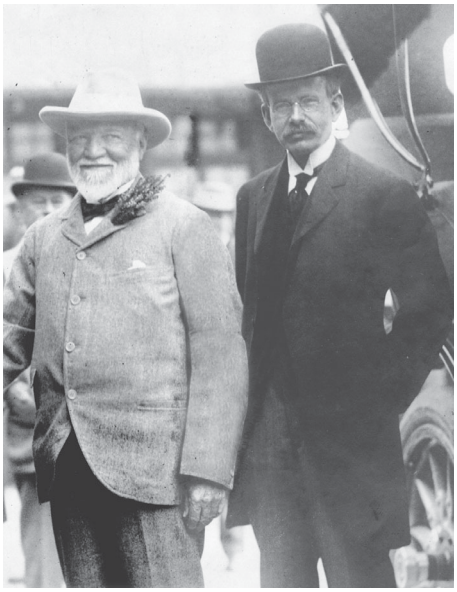


PHOTO COURTESY OF ANNE JAMES

Carnegie and Hale after the Annandale luncheon. Carnegie is wearing the sprig of heather given to him by "a dour lady" at the luncheon.

A gathering of eminent personages outside the Hotel Maryland in Pasadena. From left: A. Davidson, G. E. Hale, J. H. McBride (Hale's physician), John Muir, H. F. Osborn, J. D. Hooker, J. A. B. Scherer (president of Throop Polytechnic Institute), and honored visitor Andrew Carnegie.

is not netted with irrigation ditches nor in a high state of cultivation, as has been given out by Prof. Lowell. The 'Laird of Skibo' will be given an opportunity to look at the spots on the sun and watch the photographers make pictures of the sun, stars, and moon. An effort will also be made to take an advanced peep at Halley's comet. A report from the summit of Mt. Wilson late last night was that the sky was absolutely clear, and the lights at San Pedro Harbor were plainly visible."

MOUNT WILSON — MARCH 21, 1910

Wrote one newspaper: "The members of the Carnegie party rode in three wagons, each drawn by a team of stout horses. In the first wagon were Mr. and Mrs. Carnegie, Miss Margaret Carnegie, Miss Margaret Hale, and Professor George E. Hale, director of the observatory. ...In the second carriage were the members of the Carnegie household, and in the third were Col. J. G. [sic] Hooker and Dr. J. A. B. Scherer, president of Throop Institute. ...Halfway up the mountain a stop was made for lunch, which had been put up by the Raymond hotel management. ...Mr. Carnegie...commented on the beauty of the scenery, the majestic pines, and the tangled undergrowth, and was happy as a child as he viewed each step of the way."

But, "...at a turn in the trail we plunged into an enveloping fog and from there until we reached the summit the view was closed. Mr. Carnegie did not mind the fog, however, except that it spoiled the chance of a peep at the heavens through the big telescope. He hopes to have this tomorrow. Late in the afternoon, Professor Hale conducted the party to the observatory and there Mr. Carnegie saw for the first time the great instrument that bears his name. He posed for his photograph and studied the mechanism of the glass with Professor Hale explaining it all, and gazed in wonderment at the ease and precision with which the movements of the telescope and dome were controlled. He shook hands with Colonel Hooker, who had given the 100-inch mirror now being made in France for the new reflecting telescope. ...After viewing the telescope, the party inspected the new [150-foot] tower which is to be used for the study of solar energy. The massive girders for this are being erected and the instruments are being made in the Santa Barbara Street laboratory of the observatory in Pasadena. Then the site of the new telescope was shown and its advantages pointed out. The money for this work has not yet been provided, by the way, and it is the hope of the scientists at the observatory that one result of Mr. Carnegie's visit will be the immediate setting aside of the $500,000 needed for its construction."

Los Angeles Examiner, March 22, 1910 (story datelined March 21): CARNEGIE CLIMBS MT. WILSON TRAIL; CALLS IT THE WORLD'S WONDER SPOT. "Andrew Carnegie sleeps tonight in a rustic cottage within a stone's throw of the observatory of which he is the donor. Above him tower the giant pines which stood as sentinels guarding the top of the mountain hundreds of years before the men of science came hither to watch the comets at play and count the stars in the heaven's limitless field. He is 5,880 feet above the ocean's level and hundreds of feet above the clouds that float across the summit like drifting fleece before a ceaseless wind."

Accompanying Carnegie (seen at far right) to the observatory shops in Pasadena and Mount Wilson were (from left) Evelina Hale (Mrs. George Ellery Hale) and daughter Margaret Hale; Mrs. Andrew Carnegie and daughter Margaret Carnegie.

COURTESY OF THE ARCHIVES, CALIFORNIA INSTITUTE OF TECHNOLOGY

Hale and Carnegie next to the 60-inch telescope during Carnegie's March 1910 visit to Mount Wilson.

Undaunted at the foggy weather that greeted the party on the mountaintop, Mr. Carnegie stated: "This is the pulpit of the universe. ...Here we have the atmosphere and the elevation and other conditions that are most favorable, and we expect great results and we are getting them."

According to an accompanying story in the March 22 *Examiner*, an "improvised elevator" had been prepared by the scientists for Carnegie so that he might view Halley's comet through the 60-inch telescope: LAIRD OF SKIBO TO BE SAVED NEEDLESS CLIMBING; BLOCK AND TACKLE

...TO PAGE 6 ▶

CARNEGIE — FROM PAGE 5

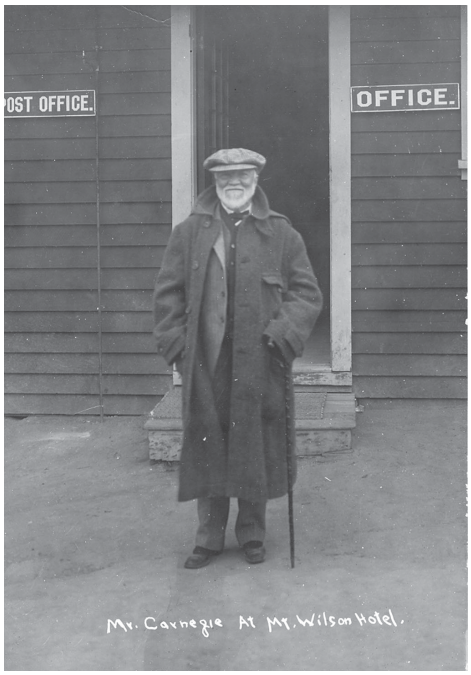
TO RAISE IRON MASTER IN BASKET TO LOOK INTO TELESCOPE.

"Up in the great observatory on Mt. Wilson, where the mammoth 5-foot reflecting mirror is located, there has been rigged up an improvised elevator in the shape of a huge basket, with block and tackle for hoisting, which is to be used for Andrew Carnegie when he reaches the top of the mountain to inspect the great astronomical instrument which his millions made possible. The scientists have built this improvised elevator in order to save the iron master from any hardship which might further injure his knee should he attempt to reach the great reflecting mirror for a peep at Halley's comet. ...Andrew Carnegie will be the first man ever to have been hoisted up to the lens in the observatory to secure a peep through the mammoth [telescope] which has been the means of making Mt. Wilson celebrated. ...Everything is in readiness...." But, alas, it was not to be.

Information for this article comes principally from scanned newspaper clippings from the Hale scrapbooks, a journalistic record of Hale's career from the early 1890s through the 1950s. After Hale died in 1938, his widow, Evelina Hale, continued the collection through the early years of the Palomar Observatory. Robin and Todd Mason digitized the scrapbooks during their research for their documentary "Journey to Palomar." The four original scrapbooks were given to the Huntington Library.

Thanks to Don Nicholson for additional photographs, and to Robin Mason for sharing the photo from Anne James (Margaret Hale's eldest daughter).

A beaming Carnegie posed at the entrance of the Mount Wilson Hotel after staying the night in one of the hotel cottages. Said he: "I've had a splendid trip and enjoyed every minute of it."



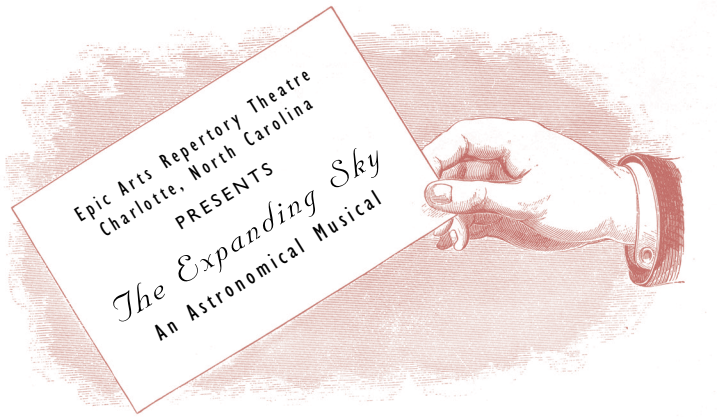
COURTESY OF THE ARCHIVES, CALIFORNIA INSTITUTE OF TECHNOLOGY

THE WEATHER WINS OUT; CARNEGIE PLEASED ANYWAY

A newspaper clipping reported on the previous day's visit to Mount Wilson Observatory: CARNEGIE WILL GIVE PRESENTS: OBSERVATORY AND THROOP ARE TO BE RECIPIENTS. "Mr. Carnegie returned from Mt. Wilson yesterday morning without having seen either the sun or the stars through the observatory [telescopes]. He saw enough, however, to convince him that the Mt. Wilson Observatory and Dr. Hale are as good scientific investments as the world affords today. It may be said upon good authority, that Mr. Carnegie will soon announce large gifts to the observatory and to Throop Polytechnic Institute. Mt. Wilson, already the greatest observatory in the world, will probably be so established for several generations to come by Mr. Carnegie's interest in it.

"Mr. Carnegie spent the entire morning with the guests at the hotel, hardly knowing whether he was most entertaining or entertained. Then he and the other members of his family were wrapped in the big fur coats that are used for night work by the astronomers in the observatory and brought safely from the snow banks above to the valley, fragrant with orange blossoms, below."

IN CASE YOU WERE WONDERING — "Asked as to the correct pronunciation of his name, the aged ironmaster straightened up and said 'Car-ne-gie [Car-na-gy, with the accent on the second syllable and a long a], most emphatically so.'" — and the name of his estate in Scotland, Skibo, is "...pronounced according to Mr. Carnegie with the accent on the ski with a long i.'"

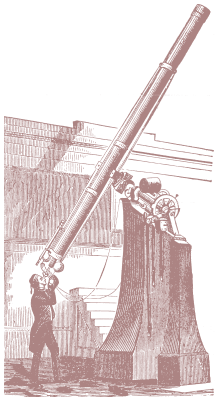


North Carolina playwright Stan Peal was awarded a commission in 2004 by the Ensemble Studio Theatre/Alfred P. Sloan Foundation to create a musical based on the life of Milton Humason. *The Expanding Sky* is set for its full premiere production in Charlotte, August 10–19, 2006.

Milton Humason was a Minnesotan who dropped out of school after the eighth grade to live in California. He worked as a bellhop, laborer, and muleskinner, driving a team of pack mules up and down the mountains near Pasadena. While hauling the equipment for the construction of the Mount Wilson Observatory in 1905, he fell in love with Helen Dowd, the daughter of the head electrical engineer on the project. He stayed on as a janitor, then became a night assistant. He showed such aptitude that he eventually became an observer and worked alongside Edwin Hubble — and together they made a discovery that changed the way we look at the cosmos.

Peal is also Managing Director of Epic Arts Repertory Theatre. He said, "Our challenge now is raising the funds to mount the kind of quality production the piece requires. We have to create Mount Wilson, Pasadena, the Observatory, the labs, see the stars, and procure the actors and musicians to give the story life. It's quite an undertaking!" Artistic Director Laura Depta has set the budget at $15,000. "It's a modest budget for a theatrical production, but ambitious for a small independent theatre," she points out. "This script has a great future, so we're going to give it a stellar premiere." Contributions to assure adequate funding for this production are welcome.

Epic Arts Repertory Theatre, P.O. Box 560596, Charlotte, NC 28256
Telephone — 704/567-9964
Stan Peal, Managing Director — Stanpeal@yahoo.com
www.epicartsrep.com



Elsewhere

NON-MWOA EVENTS OF INTEREST TO ASTRONOMY LOVERS IN GREATER LOS ANGELES

★ Compiled by Laura Woodard Eklund

An expanded version of this column called "On the Event Horizon" can be found online at www.mwoa.org.

LECTURES & PLANETARIA

Fridays at Santa Monica College (SMC): "The Night Sky Show" at 7:00 P.M. in Drescher Planetarium (223 Drescher Hall) followed by feature program at 8:00 P.M. Admission: $4–$5 (or $7–$9 for both shows). Info: http://www.smc.edu/planetarium/ or (310) 434-4223. Upcoming feature shows:
- June 9, 16, & 23 — "The Universe in Different Colors"
- June 30 — Michelle Thaller of Caltech on "The Universe in Infrared: The Spitzer Space Telescope"

Fri., June 9, 7:30 P.M., monthly meeting of Santa Monica Amateur Astronomy Club: Bryan Crandall on "Inflation Happens! Don't Blame Greenspan" at New Roads School, 3131 Olympic Blvd. (between Stewart Street on the west and Centinela Avenue on the east). Traveling west on Olympic, turn right at the second entrance to New Roads School at the Herb Alpert Campus. The meeting is in the Huerta room in the green building. Free. Info: http://connect.to/smaac or (310) 495-7595.

Fri., June 9, 7:30 P.M., monthly meeting of Orange County Astronomers: Chris Butler on "A California Astronomer in Queen Mary's Court" (giving planetarium talks aboard the Queen Mary 2) in Hashinger Hall, Chapman University, Orange. Free. Info: www.OCAstronomers.org or (714) 751-6867.

Sat., June 10, 7:30 P.M., monthly meeting of "The Local Group" Astronomy Club of Santa Clarita Valley: David Paul Green on "Eclipse from Libya, March 2006" at Newhall Senior Center, 22900 Market Street, Newhall. Free. Info: www.lgscv.org or (661) 297-2612.

Sat., June 10, 7:30 P.M., monthly meeting of Riverside Astronomical Society: MWOA Trustee Tim Thompson of JPL on "Spitzer Space Telescope" in Cossentine Hall (which houses and is labeled "The World Museum of Natural History"), La Sierra University, Riverside. Free. Info: www.rivastro.org or (909) 342-2389.

Mon., June 12, 7:45 P.M., monthly meeting of Los Angeles Astronomical Society at Griffith Observatory Satellite Facility (park in south end of Zoo parking lot in Griffith Park). Free. Info: www.laas.org or (213) 673-7355.

Fri., June 16 and 30, at Cal State Northridge: Sky Show at 7:30 P.M. in Donald E. Bianchi Planetarium in Citrus Hall. Telescope viewing follows at 8:45 P.M. Planetarium Box Office opens at 7:00 P.M (tickets $3–$5). Info: http://www.csun.edu/phys/announcements_and_planetarium/planetarium.html or (818) 677-5601.

Fri., June 16, 8:00 P.M., Los Angeles Valley College (LAVC) Astronomy Group presents "Oasis in Space" in LAVC Planetarium, 5800 Fulton Ave., Valley Glen. Tickets ($3–$5) go on sale at 7:30 P.M. (children under 8 are not admitted). Viewing through a 16-inch telescope follows. Info: http://lavcag.ars-chemia.net/index.htm or (818) 947-2335.

Saturdays, 7:00–9:30 P.M.: Mountain Skies Astronomical Society public programs at MSAS Astronomy Village, Lake Arrowhead. Tickets: $5–$9. Info: www.mountain-skies.org or (909) 336-1699. Upcoming programs:
- June 17 — "Astronomy ABC's"
- June 24 — "Summer Constellations"
- July 1 — "Today's Universe"
- July 8 — "The Moon, Our Nearest Neighbor"

Wed., June 21, 7:00 P.M., monthly meeting of San Diego Astronomy Association: Gary Peterson of SDSU on "The Problem with Pluto" at Mission Trails Regional Park Visitor and Interpretive Center. Free. Info: www.sdaa.org or (619) 645-8940.

Theodore von Kármán Lecture Series: Michael J. Sander of JPL on "Moon, Mars and Beyond — Apollo on Steroids." Info: www.jpl.nasa.gov/events or (818) 354-0112. Choose one:
- Thu., June 22, 7:00 P.M. in von Kármán Auditorium, JPL (also webcast). Free.
- Fri., June 23, 7:00 P.M. in Vosloh Forum, Pasadena City College. Parking $1.

Friday, July 7, 7:30 P.M., monthly meeting of South Bay Astronomical Society (SBAS) in El Camino College Planetarium. Park in lot C on the south side of Manhattan Beach Boulevard at Lemoli, one light west of Crenshaw Boulevard in Torrance. Walk east to Planetarium. Free. Info: www.geocities.com/sbas_elcamino or (310) 377-9834.

FAMILY EVENTS

Fri., Jun. 16, 6:00–9:00 P.M. Family Evening: Salute to the Sun" at the Huntington Library, San Marino. Enjoy one of the longest days of the year as the summer solstice approaches. A guided garden walk in the evening will be followed by a program dedicated to our nearest star, the Sun. Ages 5 and up, with accompanying adult. Fee: $20–$30. Info: www.huntington.org or (626) 405-2128.

Beginning June 26 to Aug. 21: Hands-On Science Camp for pre-K–12 at California Science Center in Exposition Park. Fee: $120 and up. Info: www.casciencectr.org/camp or (213) 744-7400.

Through June 29: "Magnificent Desolation: Walking on the Moon 3-D" (narrated by Tom Hanks) at California Science Center in Exposition Park, Los Angeles. Tickets: $4.75–$8 (plus $6 to park). Info: www.casciencectr.org or (213) 744-7400.

STAR PARTIES & TELESCOPES (weather permitting)

Sat., June 17, sunset: South Bay Astronomical Society hosts public star party at Ridgecrest School, Northbay Road, Rancho Palos Verdes. Free. Info: www.geocities.com/sbas_elcamino or (310) 217-1512.

Sat., July 1, 2:00–10:00 P.M., monthly public star party at Griffith Observatory Satellite Facility (park in south end of Zoo parking lot in Griffith Park). Free. Info: www.GriffithObs.org or (213) 664-1191.

Sat., July 1, sunset–10:00 P.M.: star-gazing with the Riverside Astronomical Society at Barnes & Noble in the Tyler Galleria. Free. Info: www.rivastro.org or (909) 342-2389.

Every Wednesday, 7:45–10:00 P.M.: Los Angeles Astronomical Society hosts a weekly Telescope and Mirror-Making workshop at Garvey Ranch Observatory, Garvey Ranch Park, Orange Avenue, Monterey Park. Free. Info: www.laas.org or (213) 673-7355.

TOUR

Thu., June 22, 11:00 A.M.–12:30 P.M., Caltech Architectural Tour: Hear about George Ellery Hale, founder of both Mount Wilson Observatory and Caltech. Meet in the front hall of the Athenaeum (northwest corner of Hill Avenue and California Boulevard). Info: www.its.caltech.edu/~cwclub/cats.htm or (626) 395-6327.

Mount Wilson Observatory Association
P. O. Box 70076
Pasadena, CA 91117

FIRST-CLASS MAIL

Public Lecture Sunday, June 25 —
The Solar Eclipse of March 29

OBSERVATORY OPEN TO VISITORS

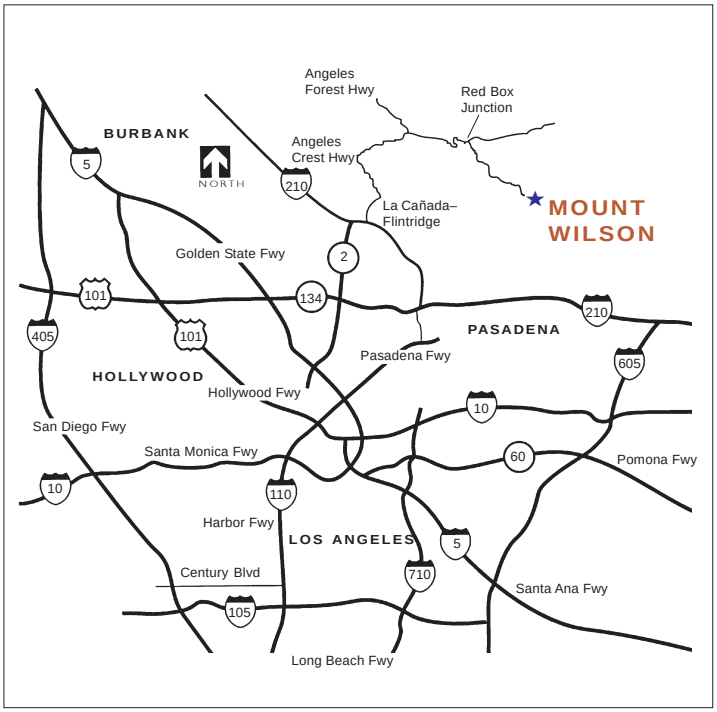
The Observatory grounds and Skyline Park are open to the public, including the Astronomical Museum and the Visitor's Gallery of the 100-inch telescope. Hours are 10:00 A.M. to 4:00 P.M. seven days a week. A free self-guided tour brochure is available at the museum.

FREE WALKING TOURS, EVERY WEEKEND

Docent-led tours start at 1:00 P.M. on Saturdays and Sundays at the Skyline Park Pavilion and last about 2 hours. No reservations are needed.

DIRECTIONS TO MOUNT WILSON

From the 210 freeway, follow the Angeles Crest Highway (State Highway 2 north) out of La Cañada–Flintridge for 14 miles to Red Box–Mount Wilson Road; turn right, and go another 5 miles to the Observatory gate, marked Skyline Park. Walk in on the Observatory access road (far left side of parking lot) about 1/4 mile to the Observatory area. The Museum is opposite the 150-foot solar tower. The U.S. Forest Service requires those parking within the Angeles National Forest to carry a "Forest Adventure Pass." It can be purchased for $5 (one day) or $30 (season) at Clear Creek Ranger Station or Red Box Ranger Station, at the Shell Station at the foot of Angeles Crest Highway (open 24/7), and at major sporting goods outlets such as Sports Chalet.



JOIN THE MOUNT WILSON OBSERVATORY ASSOCIATION MWOA

Membership Benefits—see page 2

Has Your Membership Expired? Please check your mailing label! It shows the year and month your MWOA membership expires.

To Renew or Begin a New Membership —

Detach and mail this form with your check (payable to MWOA) in the amount for an Associate, Family, or Sustaining membership.

Name E-mail Address

Address (Street/City/State/Zip) Telephone

Type of Membership (check one) ◯ Associate ($20) ◯ Family ($30) ◯ Sustaining ($100)

Make your check payable to MWOA, and mail to MWOA, P. O. Box 70076, Pasadena, CA 91117.