Letters to Hale

On June 29th, we celebrated the 150th anniversary of the founder of Mount Wilson Observatory, George Ellery Hale. A giant in his time, he guided astronomy through the 20th century with the biggest and best telescopes in the world. He and the astronomers who used his telescopes revolutionized our understanding of the Sun, the other stars, and the Universe. The consummate networker, he left a rich record of correspondence, documenting his many connections. Now, many of his personal letters are available online, and give us an even deeper appreciation of his remarkable life and how he accomplished so much.

On the mountain, in the Observatory museum, many of his letters and journal entries are on display in chronologic order, beginning with his drawings in a small notebook of protozoans he observed through his microscope. (Hale was first enthralled by the invisible world of the very small, before developing a passion for the very largest objects, like stars and galaxies.) The letters come from Einstein, Nikola Tesla, Alexander Graham Bell, and other leaders in science and business. The last item on display is his late-in-life recollection of the Great Chicago Fire, a pivotal event in his early life when he was only three. The full, searchable collection, the George Ellery Hale Papers, was recently published online by Caltech with the Huntington Library and Carnegie Institution on the 150th anniversary of Hale’s birth. (hale.archives.caltech.edu).

The collection includes revealing correspondence with family — his father, his future father-in-law, his daughter on her 18th birthday. And with colleagues and fellow astronomers — Ellerman, Adams, and Babcock — heartfelt letters which demonstrate how highly they regarded and cared for him. There is material revealing his political leanings, his medical conditions, his disinterest in the public’s regard. Even a couple of letters from crackpots, with responses full of decency.

Mount Wilson is Open to Visitors

Weather and roads permitting, Mount Wilson Observatory is open every day. Come on up to the mountain to enjoy the beautiful weather and uplifting surroundings! The Cosmic Café is open Saturdays and Sundays, 9 a.m. to 5 p.m., offering a variety of fresh-made sandwiches and other treats. At the Café you may purchase a National Forest Adventure Pass and tickets for the weekend walking tours. On weekdays the pass can be purchased at the gas station at the bottom of the Angeles Crest Hwy. The Cosmic Café is located in the Pavilion overlooking the large parking lot at the entrance to the Observatory. We will see you at the top!
The Mount Wilson Institute operates Mount Wilson Observatory on behalf of the Carnegie Institution for Science. Mount Wilson Institute is dedicated to preserving the Observatory for scientific research and fostering public appreciation of the historic cultural heritage of the Observatory. Reflections is published quarterly by the Mount Wilson Institute.

INFORMATION
For information about the Observatory, including status, activities, tours, and reserving 60-inch and 100-inch telescope time, visit our website:

mtwilson.edu

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Editor’s note: Marilyn Morgan, the longtime, volunteer editor of Reflections passed away suddenly in May (see page 7). She was a gifted, dedicated editor as well as a kind human being. I am trying to fill her shoes. And this is why the June issue of the newsletter is late.

For the use of historical photographs of Mount Wilson, we thank the Observatories of the Carnegie Institution for Science, the Huntington Library, and other sources as noted.

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PAGE ONE BANNER PHOTOGRAPH
(Inset) Edwin Hubble at the Newtonian focus of the 100-inch telescope on Mount Wilson, circa 1923.

NEWS + NOTES

CONCERTS AND TALKS AT MOUNT WILSON OBSERVATORY

We have had a busy season on the mountain this year, with many first time visitors coming up to enjoy concerts in the 100-inch Telescope dome and science lectures in the auditorium followed by viewing through the 100-inch telescope. Check the website for more events.

TRIPLE MATCH

We are three-quarters of the way to our goal of raising $20,000! It will be triple matched to help us get started on much needed infrastructure. (See Trustee Michael Horner’s letter on the adjacent page). We would really appreciate more small donations to help get us to the top!

LOOK THROUGH OUR TELESCOPES

The 60-inch telescope provides incredible views of some of the most beautiful objects in the night sky, and is among the largest in the world accessible to public viewing. The 100-inch telescope, the world’s largest from 1917 to 1949, forever altered our understanding of the Universe. For information on how you can reserve time, available dates, fees, and to make reservations — visit www.mtwilson.edu and click on the “Observing” menu tab at the top.

DON’T WANT TO MISS ANYTHING?

Subscribe to Mount Wilson Observatory News for updates on concerts, lectures, public telescope nights, and other events. Sign up right from our website — visit www.mtwilson.edu to find the link.

Help Sustain the Observatory

The Observatory receives no regular support from government or institutions. We rely on donors, a few small grants, and the revenue from our telescope nights to fund our continued operation. You can help ensure the continued operation of this science heritage site with your tax-deductible gift. We welcome donations of any size and volunteer efforts of all kinds. Visit mtwilson.edu for information on how to support the Observatory through donations or volunteering.
The Observatory Launches its First Triple Match Fundraiser

Three years ago, I had my first look through the 100-inch Telescope at Mount Wilson Observatory. It was a true “Oh my God” experience. I was observing the heavens through the same instrument that led to many of the greatest discoveries in science. In the hands of astronomer Edwin Hubble, this telescope was the first to show that the Universe is not just the Milky Way Galaxy, but billions of galaxies, and that space itself is expanding. What an incredible thrill. This was the real deal! Yet many in Los Angeles don’t know about this world-class site sitting in their own backyard.

When my friend Sam Hale, grandson of the remarkable George Ellery Hale who founded the Observatory, asked me to join the board of the Mount Wilson Institute, I jumped at the opportunity. How could I resist supporting this international icon of scientific achievement? Its history and its potential to inspire and to educate future generations deserve much wider recognition. The Board of Trustees of the Observatory has set out to do just that. We have a number of science programs reaching out to local schools. There are now concerts in 100-inch dome, and astronomy lectures in our auditorium followed by an opportunity for the general public to look through one of the big telescopes. And most importantly, we are exploring ways to increase the fundamental science done on the mountain beyond the cutting-edge research being done with the CHARA array of telescopes.

Widening of our reach necessitates an upgrading of the facilities and infrastructure to handle more people. One of the most fundamental needs is for restroom facilities on the eastern side of the property, where the telescopes are. We currently spend upwards of $30,000 a year just to rent facilities for special events. We need permanent public bathroom facilities. We have the site but we need the financial resources to launch this essential, if unglamorous, project.

I have pledged $20,000 and a number of other supporters, including all of our trustees, have pledged another $20,000 for us to launch a triple match challenge. It will run until September 16, the day of the second annual Mt. Wilson 5K run. For every dollar in small (or large) donations we receive during this period, the observatory will get three! Our goal: If the public donates $20,000, we will net $60,000—enough to get the project going.

As of this writing, we are three-quarters of the way to raising the full amount! We have had a number of big checks from very generous donors, but we would love to get a lot of small donations from the many people who visit the mountain, to get us to the top.

I am asking all of you who are as thrilled as I am with this magnificent temple of science to join me in supporting this critical project. As a father, grandfather, and for 40 years the owner of Tom Sawyer Camps which touched the lives of thousands of young people in Los Angeles, I feel it in my bones how important it is to keep the next generations engaged and educated.

Mount Wilson Observatory, with a little help from our many friends, will continue to educate and inspire for years to come. If you are able, now is the time to help the Observatory! Tax-deductible donations are easily made via our website at mtwilson.edu or send a check to:

Mount Wilson Institute
P.O. Box 94146
Pasadena, CA 91109

With Sincere Gratitude,

Mike Horner

Trustee of Mount Wilson Institute
Dan Kohne, a Mount Wilson Institute trustee, selected the letters for the museum display with the help of Caltech archivists Peter Collopy and Mariella Soprano. (The 1913 letter from Einstein can only be found in the Huntington Library collection; the rest are online or in the museum.) Kohne selected letters that revealed Hale’s human side, rather than that of the scientist. Two of the most poignant letters give us insight into the pressures dissuading him from an early marriage. The letters come from his father William, with whom George had a very close relationship, and his future father-in-law, William Conklin.

The letters are written shortly after Hale left for college to study physics at the Massachusetts Institute of Technology and, apparently, after the eighteen-year-old confided to his mother that he had plans to marry his sweetheart, Evelina Conklin. His father’s — the first page of which is reproduced below — urges him to not yet “feel the weight of responsibility, which comes to all of us sooner or later.” Towards the end of the letter, he admonishes his son, after warning that he may not be mature enough to make the decision yet, that “It may be there is no cause to fear even this, but the history of all time, proves it often to be the case though there are of course frequent exceptions.” This sentence is followed directly by an annotation in pencil made by the young Hale when he made this entry in his pocket notebook. It reveals the protozoans he observed with his beloved microscope — his first unseen universe. Many are identified, but he left those he was uncertain of blank. Note the parade of amoeba forms at the top.

Dan Kohne, a Mount Wilson Institute trustee, selected the letters for the museum display with the help of Caltech archivists Peter Collopy and Mariella Soprano. The first page of a letter from Hale’s father, reveals his love for this son. The remainder, councils him against too many responsibilities, in particular, marriage at such a young age.
Hale; “(And this is one, Lena!)” His response to his father is revealed to us, but perhaps was not to his father.

The next letter from William Conklin was even more blunt and perhaps harder for Hale to read. “I cannot help a feeling of regret, and that you were overhasty in this matter,” on account of their youth. He makes the same point as William Hale, that their minds may change, and then he adds, “I must request that you will not attempt to bind her by any promise, but patiently wait at least two years; at the expiration of that time, should you desire it, I will cordially grant you an interview.” So Hale had no choice but to wait to get married, which he did four years later in 1890, after his graduation.

Another letter is most notable for its envelope, and shows that Hale kept almost every bit of correspondence. The sender believes he has discovered a connection between the magnetic field of the orbiting planets and sunspots—a theory that Hale knows is crazy, given the enormous distances between the planets and the Sun. The fact that this gentleman wrote that he had “found an equation to make sense of it all, probably irritated Hale even more. So Hale wrote a note on the envelope for his secretary: “Please merely acknowledge the receipt of these letters after Sept. 1, saying that I am out of town. He is a half-crack, but I knew his wife years ago, and don’t want to be called upon for comments on his wild ideas.” Hale apparently reviewed his message, and drew a line through the “half,” crossing it out.

Many of the letters Dan Kohne selected for the Mount Wilson Observatory museum reveal how highly Hale was regarded by his colleagues, who viewed him not only as the director of the Observatory, but as a dear friend. In the museum there are letters from Walter Adams, Ferdinand Ellerman, and Harold Babcock. All express their deep gratitude to Hale for changing their lives.

The letter from Babcock, written in 1933 on the occasion of his being elected to the National Academy of Sciences is a prime example. Babcock was invited to Mount Wilson Observatory in 1908, in the second wave of staff to join the few pioneers who moved with Hale from Yerkes in 1904. The letter is his response to Hale’s congratulatory note. After writing that it was a pleasure communicating his thanks to his many other friends, he shows us that Hale was different. “When however I start to write to you on this occasion, I find myself at a loss for words. Like many another man, I owe everything to you and to recount my indebtedness to you is practically impossible. For the opportunities you have opened to me, the facilities you have provided, the guidance and wise council given, the encouragement and sympathy, and above all that unique sense of exaltation with which my interviews with you have invariably left me, I cannot thank you in words.”

The number of remarkable careers he made possible are one thing, but Hale touched people on a much deeper level. He left an enormous wake.

One of the documents simply records Hale’s first visit to Mount Wilson. But like many of the others it provides a window into his mind. Visiting Pasadena in late June, 1903, he hiked up the narrow, old Mount Wilson Toll Road and his notes show that he was already starting the meticulous planning that his new observatory would require. He was always “scheming” as he called it to get funding. But he was also impatient to get things done; he is making notes about the road and who to contact for estimates to build it and how many fire rangers will be needed to protect the mountain top (five). He mentions a few other higher peaks, but clearly he has chosen Mount Wilson as the most practical site. But even this peak was a formidable challenge for sighting the biggest telescopes in the world. It took Hale to make it happen.

In June, 1903, Hale’s journal records his first climb up Wilson’s Peak, as it was originally called. He was already planning construction of his future observatory.
The list of Hale’s correspondence reads like a Who’s Who of the early twentieth century. There are the letters to and from philanthropists like Carnegie, Rockefeller, Mellon, and Dupont. But presidents, princes, artists and poets are there too. Not surprisingly, he kept up a steady stream of correspondence with nearly all the leading astronomers of the day. Since Hale was an astrophysicist, many famous physicists regularly corresponded with him as well, including Lord Kelvin, Sir J. J. Thompson, and Ernest Rutherford. Many, like Nicola Tesla in the letter below, greeted him as Dr. Hale, although he never earned a Ph.D.

The letters often resolve outstanding questions that arise from other sources, like the photo on the right. Why would Hale miss the opportunity for such a historic photo op with Einstein at Mount Wilson headquarters, when he lived right nearby? Albert Michelson, the first American to win a Nobel Prize was there, despite in being in poor health; indeed, he would only live another three months.

Another letter found in the Caltech archive, but not currently in the museum, reveals the reason for Hale’s absence. He and Einstein had kept up a regular and often personal flow of letters over the years, since the first one in 1913. One, dated February 26, 1931, comes very soon after Einstein’s visit to Mount Wilson.

Although they apparently did meet in private, Hale apologetically explains to him why he was not more social.

“May I tell you and Mrs. Einstein how greatly we have all appreciated your visit to Pasadena, and how deeply disappointed I have been because of my inability to enjoy the many opportunities you have so kindly given us. After three successive nervous breakdowns, which forced me to rest for three years without doing any work whatever, I was finally compelled to give up the directorship of the Mount Wilson Observatory and to lead an extremely quiet life. The effects of my last breakdown still persist to such an extent that I am exhausted by very little work or mental excitement. For this reason my physicians agree that I must live as I do, but you may be sure that I am not following my own choice in thus completely changing my mode of existence. I earnestly hope that you say return to California before long and that I may then be better able to ask your advice about many problems.

With repeated thanks and best wishes for your return journey,

Yours very sincerely,

George Ellery Hale

On the occasion of Einstein’s January, 1931 visit to Mount Wilson Observatory’s offices in Pasadena, this photo was take in the library. To the left of Einstein, stands Nobelist Albert Michelson. Edwin Hubble stands under the portrait of Hale, but Hale himself is absent.

This letter from Nicola Tesla wins for best letterhead. It shows Tesla’s iconic Wardenclyffe Laboratory on Long Island, N.Y. The 187-foot transmitting tower was built for wireless telegraphy. Tesla was one of many pioneers of modern technology with whom Hale corresponded.
IN MEMORIAM

Marilyn E. Morgan
1944 - 2018

Readers of this journal will be familiar with Marilyn as the long-time editor, designer, and writer for Reflections, commencing in April 1999. Marilyn’s interest in astronomy was first piqued by NASA’s Viking Mars mission; in 1976 she witnessed the first downloads from the surface landers by staying after-hours in her family’s retail audio/video store. She vowed then that she would eventually work for NASA’s Jet Propulsion Laboratory (JPL) so that she could more personally participate in space science. In subsequent years she joined the Astronomical Society of the Pacific, took a number of extension classes in astronomy at UCLA, and joined the Mount Wilson Observatory Association.

In 1986, Marilyn achieved her goal of working at JPL. She was first hired as a technical writer in the Documentation section, and subsequently moved to the Design Services area where she engaged in a range of technical writing, technical editing, and graphic design efforts in support of external publications. Her favorite responsibility was serving as technical editor for JPL’s only refereed journal, the Interplanetary Network Progress Report. Her creative talents were widely acclaimed for her evocative captions to images presented in Scenes from Mars: Mars Global Surveyor and Scenes from Saturn, both published by JPL.

Marilyn had numerous other interests in addition to astronomy. She spent a lot of time in art museums, but did not ignore natural history museums and historic-artifact collections. Another interest was historic warbirds from the WW II era; she was a life member of the Commemorative Air Force, an organization devoted to preserving these aircraft in flying condition. She was also a life member of the Freedom From Religion Foundation and a contributor to many conservation organizations. Her personal library contains a large section on history, but also numerous volumes on aerospace and the physical and biological sciences.

A true passion was early music (that composed before c. 1750). She supported a variety of early music groups with her concert attendance and donations, and, from 1990 to 1995, devoted uncounted hours to the magazine of the Southern California Early Music Society. That magazine, Early Music News, was published monthly during the concert season, and Marilyn was responsible for the initial publication design, as well as the content.

Marilyn also authored numerous articles for Early Music News (as she did for Reflections in recent years).

Marilyn retired from JPL in January after 32 years of service. She found it necessary to resign as Editor of Reflections after the March, 2018 issue when she was diagnosed with pancreatic cancer. Her talents and dedication will truly be missed.

Larry W. Allen

C. Robert Ferguson
1938 - 2018

In addition to being a trustee, C. Robert Ferguson was, with Art Vaughan, one of the founders of the Mount Wilson Institute which kept the doors of the Observatory open after the Carnegie Institution of Washington decided to close down operations in 1985 in favor of its site in Chile. He fought to preserve the Observatory. We will greatly miss Bob, both for his hard work, and for his kindness and humor.

Bob was an Adjunct Professor of Astronomy at the University of La Verne, California. He also taught telescope optics at the University of California Los Angeles and at Irvine. Bob was an attorney at law and practiced in the fields of complex business and land use litigation. He was a graduate of University of Southern California with an A.B. in Economics and a Juris Doctor. He also studied European economics and literature at the University of Vienna, Austria. Between 1994 and 2002, he taught Evidence and Civil Procedure at the University of La Verne's College of Law. He was married to the former Peggy Burke of Statesboro, Georgia. Bob had two children from a previous marriage, Shari and Timothy Ferguson. We send our kindest thoughts and sympathy to his family.

The staff of Mount Wilson Observatory is deeply saddened by the loss of these two steadfast champions of our mission, who will be impossible to replace.

We are honored to have known them, and deeply appreciative that their loved ones encouraged donations to be sent to the Observatory, in lieu of flowers. We have received nearly $2,000 in their memory. If you would like to make a donation in their name please visit our website homepage at mtwilson.edu.
Welcome, Visitors!

Welcome hikers, bikers, star-gazers, visitors of all interests! The Observatory is open from 10:00 a.m. to 5:00 p.m. daily through the season, weather permitting (8:30 a.m. on weekends). The Cosmic Café at the Pavilion, offering fresh-made sandwiches and Observatory memorabilia, will be open Saturdays and Sundays from 9:00 a.m. to 5:00 p.m.

Walking Tours with a Docent

Two-hour weekend tours of the Observatory are held until December 2, on Saturdays and Sundays at 11:30 a.m. & 1:00 p.m. (The earlier tour will only run through September.) Meet at the Cosmic Café to buy a ticket. Guests on these tours are admitted to inside the historic 100-inch & 60-inch telescope domes.

Private Group Tours

Group daytime tours are available. Reservations are required and a modest fee is charged. For info, please visit www.mtwilson.edu.

Look through the Telescopes

Mount Wilson’s historic 60-inch telescope and 100-inch telescope are available for public viewing of the night sky. For details, fees, etc., on scheduling a viewing session, see www.mtwilson.edu.

Parking at the Observatory

The U.S. Forest Service requires those parking within the Angeles National Forest and the National Monument (including the Observatory) to display a National Forest Adventure Pass. For information, visit www.fs.usda.gov/angeles/. Display of a National Parks Senior Pass or Golden Age Passport is also acceptable.

How to Get to Mount Wilson Observatory

From the 210 freeway, follow Angeles Crest Highway (State Highway 2 north) from La Cañada Flintridge to the Mount Wilson–Red Box Road; turn right, go 5 miles to the Observatory gate marked Skyline Park, and park in the lot below the Pavilion. Visit the Cosmic Café at the Pavilion, or walk in on the Observatory access road (far left side of parking lot) about 1/4 mile to the Observatory area.