On Wednesday, June 29, Dave Ross called me and said, "A bright light has gone out in the firmament". The news was not unexpected. Dave had last visited with Dick on the previous Sunday and they knew he was near the end. Jeanne and Dave had started talking about the service for Dick. But for being expected, it was not any less of a loss.

During the subsequent days as I thought about Dick, I felt that a special issue of HORIZON to memorialize Dick would be a fitting tribute from his friends in the Wilderness Center Astronomy Club. What you are reading is the result of that idea.

I have gathered some articles I wrote about Dick over the years, especially the asteroid story, along with a collection of reminiscences that Dick wrote for HORIZON in 1991 about some various aspects of his long astronomical career. And I asked the membership to contribute their memories and thoughts of Dick. Jeanne Bishop, Dick's daughter, supplied me with many photos and a great deal of fascinating correspondence and other material that Dick had kept. This has helped me to sketch in many more details about Dick that I had not known or only vaguely knew about. I've used this information to paint some biographical detail about this remarkable man.

As a caution to the reader, I have chosen to reveal to you the tapestry of Dick Emmons's life through several threads that ran through it. There will be repetition in the various articles. Some events or accomplishments in his life transcended several areas, and are discussed from different angles in various pieces.

The question, for some of you who never got to know Dick, might be "Why are we doing this?" Dick was an infrequent participant in club events. His age and interests kept him from coming to meetings regularly. In fact, Jeanne told me once, nearly 20 years ago, that Dick was not much of a joiner - he tended to avoid astronomy clubs. But the fact that he decided to join our group and participate at all was a tribute to the quality of the club we have and the work we do. So I always took Dick's presence and interest as a high compliment.

But I hope in this tribute issue that you will learn more about Dick's life and his contribution to astronomy education and amateur astronomy in this area. I don't think it is too much of a stretch to call Dick our "godfather". I believe he was a founder of the Astronomy Club of Akron. His educational efforts in Stark County showed the way for future generations. His North Canton Planetarium (a.k.a. "Star Barn") showed that there was a real need for quality astronomical instruction and it laid the groundwork for the later and larger Hoover-Price Planetarium. I learned that as early
as the early 1950s he was "stirring the pot" with local movers and shakers to fund a larger planetarium. I also learned that it was a relationship between Dick and E. A. Heald, of the Stark County Historical Society that put the actual wheels in motion for the facility that would become the Hoover-Price Planetarium. Hoover-Price is where I got my first serious instruction at the hands of Jane Mahoney and Dave Bertsch. And from those seeds sprung the inspiration that created what we are doing now at The Wilderness Center. For decades, Dick was "Mr. Astronomy" - the person the local media turned to for accurate astronomical information. Today, with the Internet, that need is somewhat reduced. But we still get called on for thoughts about current events in the sky. And we try to uphold Dick's standards of conveying the wonder and the facts at the same time.

Those of you who ever observed with Dick or talked with him about his observations knew that he set the bar quite high for detailed and accurate observations and meticulous records. His passion was his satellites, but he also enjoyed many other kinds of observing. He was a discerning telescope user. If he bought a telescope and was not happy with its optics, you could bet that it would go back and be made right. That was a tremendous asset for us as members. Several of us have scopes we bought from Dick over the years - and if Dick said it was a good scope, it was a good scope.

In the process of gathering together material for this issue, I learned a great deal more about Dick than I had known before. And I grew to admire him even more - if that is possible. So, I hope all of you will enjoy this glimpse into the life and accomplishments of Prof. Richard H. Emmons. And in knowing him better, and remembering him, we help him live on.

I'll close this introduction with this little quote I found from Dick himself. The time was 1950, and he had found himself between jobs. The Kent State University Canton Branch was closing and he needed a job. He was passionate about teaching - I think this first experience at KSUCB hooked him for life. He wrote a letter to the director of the new Morehead Planetarium in Chapel Hill, NC inquiring if there were any vacancies. With that characteristic extreme modesty, this is how Dick described himself to a prospective employer:

"My background for such a position, I believe, is adequate. My enthusiasm for teaching astronomy is probably not surpassed by 100 people in this nation!"

Yes. That summed Dick up quite well. Modest to a fault, but honest. And discerning about the real crux of the issue.

Dick, we were honored to call you our friend and colleague. Thank you for your accomplishments.
The late Robert Burnham, Jr. opened his three-volume *Celestial Handbook* with a reflection on the appeal of amateur astronomy. He wrote, "Considered as a collector of rare and precious things, the amateur astronomer has a great advantage over amateurs in all other fields, who must usually content themselves with second and third-rate specimens... In contrast, the amateur astronomer has access at all times to the original objects of his study; the masterworks of the heavens belong to him as much as to the great observatories of the world."

Sometimes when we're introducing someone to Albireo for the first time we'll be heard asking things like, "Do the two stars look the same? Are they the same color? What colors do you see?" I try not to prejudice their response but eventually I'll say, "To me they look just like two little jewels, two little blue and gold gems sparkling in the night." In the back of my mind is Burnham's definition of the amateur astronomer. A collector of rare and precious jewels like those diamonds carried in the beak of the Swan or marking the foot of the Northern Cross. Better yet, because our telescopes are only tools of that "mystic harmony, linking sense to sound and sight" they enable us to give away our precious jewels without diminishing the treasury even the least little bit.

At his birthday party back in late May, a month or so before his passing, I pulled out a little chestnut by which to pay tribute to our friend and mentor, Dick Emmons. It was a quote that runs in the same vein as Burnham's remark (it would be hard to prove, but I'd bet it probably inspired the latter) and I was pretty sure it would please Dick. It was a line by Emerson from his famous essay *Nature*, written in 1844.

"He who knows what sweets and virtues are in the ground, the waters, the plants, the heavens, and how to come at these enchantments, is the rich and royal man."

I put the quote in a little card but later was asked to read it for Dick and the assembly of neighbors and friends there in his living room. As I recall the moment I think I stumbled around adding a few words to underline the sentiment. Looking back, I doubt any explanation was needed.

Everyone there understood, each in our own way, how well it applied to Dick.

In later life one of Dick Emmons' personal projects was to oversee the publication of a manuscript left by his father, Harry H. Emmons, who was a respected Stark County attorney in the early part of the last century. Dick was certainly proud to be able to bring his father's manuscript to print back in 1996. Shortly after its publication Dick received a letter of appreciation from the Ohio Bar Association, noting that the book preserves an interesting personal insight into the practice of the profession during that period.

The book recounts his early years as a lawyer struggling to establish a practice, stories of some of his more interesting cases, the conflicts he had with certain political bosses and reflections on various influences during his formative years. Chief among the latter would be the writings of Ralph Waldo Emerson.
If Dick had a passion for astronomy, his father’s passion was Emerson, one of America’s first great literary and philosophical masters. In the 20’s and 30’s the elder Emmons lectured on the subject of “Emerson, the American Confucius” and even published several collections of Emerson quotations on various subjects. In a little postscript to his father’s manuscript Dick noted a short list of some of his father’s favorite “Philosgrams”, as he called them. The list begins with the prophetic, “Hitch your wagon to a star.” It ends with the transcendental, “All that I have been teaches me to trust the Creator for all I have not seen.”

So, I was pretty sure those lines from Nature would please Dick. And when his daughter, Jeanne Bishop, honored me with the nonetheless daunting privilege of conducting his memorial service, I hunted around in Emerson for something else to help focus our thoughts in celebration of Dick’s life. I found what I was looking for in this line… “Be an opener of doors for such as come after thee…”

If Dick loved any enchantment more than the stars themselves it would have to be that of teaching about the stars. Of first note, within his family. How else did it come to pass that both his and Phyllis’ offspring became such accomplished teachers of astronomy as well? That may have been his most focused venue but the circle included his whole community over WHBC while still a teenager, and later in classes, telescope making workshops, observing sessions, public and private planetarium programs, Moonwatch events, Scouting programs, and the list would go on. It extends to us in the WCAC where the “home planetarium” that he and son Tom fabricated opened the door for possibilities that are still unfolding for us.

After retiring as an engineer, back in the early 80’s I think, he even dared to try his hand as a Jr. High science teacher in the public schools. Being not quite an angel but perhaps part fool, that particular venture proved mercifully brief! But even into his final illness Dick was still thinking about young people and wished there was something more he could do help or inspire them. Now, with the scholarship being established through The Wilderness Center for area high school students and a special annual prize to be awarded through the Astronomical Society of the Pacific, Dick’s legacy will go on opening doors of opportunity and understanding about the wonders of the universe.

And, I am proud to tell, one of his telescopes will go to Camp Wanake. There, for many summers to come, I hope young people will have a chance to be introduced to Albireo, the diamonds carried in the beak of the Swan or marking the foot of the Northern Cross. And perhaps now and again they’ll be introduced to “Mr. Astronomy” who hitched his wagon to a star and who was for his many friends a rich and royal man…

### RELATED LINKS

Copy of bulletin cover from Dick Emmons memorial service:
http://www.twcac.org/onlinehorizon/horizonpdf/emmons_memorial.htm

Text of eulogy given by Dave Ross:
http://www.twcac.org/onlinehorizon/horizonpdf/emmons_eulogy.htm
A few years ago in the pages of HORIZON, Gary Liknes posed a fascinating question to all of us. How did your interest in astronomy begin? Gary wrote about his childhood and early memories. I took up the challenge and wrote some musings as well. But I was frustrated that I could not really find where it started. Just a number of small incidents - little streams that eventually joined together to become the lifelong passion I have had.

In discussing the origin of his own consuming passion, Dick had no such problem. He remembered an incident that struck like a lightning bolt. From a wonderful grandfatherly letter he wrote to his grandson Eric, he described the incident:

"You may wonder what I was doing in my early 'teen years that got me started in Astronomy - which you must know has been a life-long interest of mine. Well, I remember in June 1932, sitting on my front porch swing, reading a copy of Popular Science magazine. School was out for the spring, and it was a nice day, and I had nothing else to do. Here was this article on the recent discovery of a small mountain-sized asteroid that had just whizzed past the Earth! They called it "1932 HA" and said it was "a mountain on the loose". I thought, "WOW. Somebody ought to keep track of those things." Then I remembered that my dad had a little book on Astronomy in his bookcase. I immediately looked for and found it, and began reading it. It was Volume 1 of a ten volume set entitled The Science History of the Universe published by the Current Literature Publishing Company, New York, 1909. Volume 1 was entitled Astronomy, and was written by a Mr. Waldemar Kaempfert. I learned a lot from that book - including that I wanted to read a lot more on that subject. Soon I had read every Astronomy book in the Canton library, and often explained things that I had read to my dad during supper, who always seemed interested in listening to me. I was hooked for life! Then I began giving little talks to adult luncheon clubs (e.g. Rotary, Kiwanis, etc.). I also gave several 15-minute talks on the radio. By the time I was a senior in high school I had a monthly newspaper column on the subject! And I was paid by the inch! My columns continued for five years. I still have that first book, and I still have the scrapbook of my astronomy columns. I have been a lifelong member of the American Astronomical Society. So you see things that happen in your early teens can shape your life - and may also affect your children's lives. I got to know your grandmother Phyllis through Astronomy. She was interested in Astronomy before she heard of me, and first wrote a note to me to ask a question, "Where in the sky do I now look to see the planet Saturn?" Soon our common interest brought about a close friendship, and I helped advise her in grinding her own 4" diameter glass for her telescope. The rest is history...."
Dick was born on May 29, 1919 during a total eclipse of the sun. He often liked to point out that fact, and that his natal eclipse was the one during which several scientific expeditions verified the predictions of the bending of starlight made by Einstein in his General Theory of Relativity. His father was a Canton attorney, Harry H. Emmons. Harry was an admirer of Ralph Waldo Emerson's writings, and later wrote a book about Emerson. So young Dick grew up hearing a lot of Emerson including the admonition to "Hitch your wagon to a star".

After his lightning bolt experience with Popular Science, he persuaded his father to spend $30 of depression-era money for a two inch telescope - the top of the line in Sears' catalog. His object of "first light" on July 25, 1932 was Arcturus. Then he turned to Saturn and later the last quarter moon.

His voracious reading and his new telescope began to earn young Dick a reputation. He was asked to speak at various clubs. The community was hungry for astronomy information. He spoke on WHBC radio. He began writing a monthly astronomy column in the local paper. Dick realized that the public was hungry for astronomical knowledge, and he filled this gap. These early experiences helped guide Dick's future career choices - not to being a professional astronomer, but to being a teacher. He went on to attend Ohio Wesleyan, Kent State and the University of Southern California getting his Bachelor's degree in Education and later a Masters from Kent State as well.
Amateur's telescopes used to come in smaller sizes. I remember my youthful grand scheme to build what I then (more than 52 years ago) believed would be the third largest telescope in Ohio—a 13 inch Newtonian reflector. So far as I knew then the only larger telescopes in the state were the 69-inch at Perkins Observatory in Delaware, and a large refractor at the University of Cincinnati.

In designing the telescope I went against the traditional mirror thickness ratio and ordered a 13 inch blank cut from 1 1/4 inch plate glass stock, an early "thin mirror", which I ground and figured to f/9 in the summer of 1938. I then built a square trussed open tube telescope, a heavy pipe equatorial fork mount, and a five-step stile observing platform to reach the eyepiece, sometimes 10 feet above the ground. Altogether, it was an impressive sight, for that time. While construction was under way I obtained permission from the Board of Trustees of Kent State University, and President Carl Leebrick, to temporarily install the telescope on the front campus, midway between the old Rockwell Library and the old training school, away from the trees, and where, it was agreed, I would provide observations and give open lectures for interested students and townspeople the first clear evening each week during the Fall 1938 semester.

The telescope/lecture series attracted modest crowds each week and was judged a success. One Sunday evening I was there alone, making some personal observations with the telescope, and a car came up the campus "Circle" at great speed and screeched to a stop nearest me, perhaps 50 yards away. The unknown driver threw open his door, the car's radio still blaring, and came running toward me, yelling, "Do you see it? Do you see it?" "Do I see what", I called back, "The invaders from Mars!" he fairly shouted while still approaching, "it's on the radio news."

My experience with the astronomically-naive public of that era allowed me to immediately grasp the true situation. I calmly told him that what he was hearing was just a radio play, and that there was nothing to be seen. But he insisted otherwise, and asked me to go over to the car with him to listen, which I did. We arrived at his car just as the radio announcer said they were switching to Washington for a special broadcast on the national emergency, and introduced "the Secretary of the Interior!" I listened for just a few minutes, and again stated that this was a play - after which I left the man at his car, probably still unconvinced, and returned to continue my observations at the telescope. I remember dismissing the incident from my mind by shaking my head.

The next day, Halloween, I learned from the headlines in the morning newspaper that Orson Welles had upset the whole nation with his Mercury Radio Theater's presentation of "War of the Worlds!"

At the end of that Fall semester I offered the 13 inch telescope as a free gift, no strings attached, to Kent State University. After consultations, however, Dr. Leebrick told me that the University would decline the offer since they would feel obligated to start a department of astronomy, which they did not want to do at that time.

Word spread as to the availability of the telescope, and Attorney Weber, of Cleveland bought it from me and gave it to John Carroll University. Months later I read in the Cleveland Plain Dealer about the new John Carroll University Observatory and its 13 inch telescope.

PS - Ten years later I built KSU a 12" telescope that they still have.
I first heard the term "flying saucer" from one of my astronomy students back in early 1950. He had been reading about them in a magazine called True, and he showed me a copy. I skimmed through one article which cited an observation by an airline pilot, and then sampled another which suggested, some seven years before Sputnik I, that another satellite of Earth was occupied by the souls of the deceased. It seems that some people feel a need to believe in something, especially something new, that runs contrary to conventional science - perhaps thereby elevating themselves to membership in an elite society of paradigm-changers like Copernicus and Einstein. Anyway, I made some comments about being more discriminating in assessing what we read or hear; that putting into print that red is green doesn't make it true; and that scientific facts become established by the severe discipline of the scientific method. But "Those convinced against their will are of the same opinion still", so I finally invited the student to come back for another discussion of "flying saucers" when one had been put on display at the Smithsonian!

The term "flying saucer" was then soon superceded by the more general term "unidentified flying object" or, UFO. Have I ever seen a UFO? My answer (tongue in-cheek) is a qualified 'yes' - two visual sightings that were, very briefly, unidentified. The first remained a puzzle for several long seconds, the other for about an hour.

One evening while teaching constellations to a small group in North Canton, I directed their attention to the star Arcturus - but there were two of them! Both points of light were the same brightness and color and were only a few degrees apart. Now that started me thinking.

It took only a second of time to decide which point of light was the interloper based on its position. Another two seconds established that it was slowly moving. Aha! It can't be a nova, so it is probably a high airplane or satellite. Which?

Another second. No tell-tale blinking lights. No noise. Then suddenly the object made an abrupt right angle jump to a parallel path; ergo it could not be an airplane or a satellite. What now? (long pause)

The only thing I could think of that would satisfy the observations was a low altitude balloon with an orange light on it, drifting with the wind and subject to wind gusts. The weather bureau sometimes launched such balloons. I made a telephone call to the weather bureau (while my group waited).
Yes, the Akron-Canton weather station had launched a small balloon with an orange light on it about 20 minutes before my call, and it was last seen by them slowly drifting to the southeast, and thus over us. Problem solved.

Then on March 16, 1958, the day before the Vanguard I satellite was launched, I started to drive back to my Orlando motel about sunset from Cape Canaveral. Through my windshield the western sky was very bright. There ahead of me, perhaps 20 degrees above the horizon, was a bright star-like object. Although it was the color of the planet Venus it was much brighter than Venus ever gets, perhaps -7 magnitude. Venus was then below the horizon, and I had seen it that very morning before sunrise. The object just seemed to hang there as I drove along. I fully expected to see a marked change in its position due to its own motion, or mine (parallax). After a while it seemed a little lower, and I thought this might be due to the Earth's rotation. Was this a bright nova?

Upon my arrival back at my Orlando motel room I immediately called the local weather bureau. They said they had received many phone calls about this object but that it was simply the planet Venus. I tried to tell them that it was not Venus, but I soon gave up. Now I remembered that I had brought my binoculars with me and this was my first opportunity to use them on this object. It was growing dark, but the object was still bright in the low west. I took my binoculars out to the parking lot where I used the top of my rental car to support my arms while I brought the target into steady focus. Voila! Immediately I had the answer - the characteristic pear-shaped image of a stratospheric research balloon was unmistakable. I watched it as it turned ashen gray and then faded out as the sun set at its attitude. There is no doubt in my mind that the balloon had something to do with the Vanguard launch early the next morning, but that the weather bureau itself was not involved.

P.S. Then there was the wide angle star photo I once took that, when developed, showed a crazy zig-zag blurred trail among the stars. Firefly!

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**Emmons Reflections - On Palomar Mountain**

**BY RICHARD H. EMMONS**

NASA's Mobile Observatory was equipped with a 24-inch Cassegrain telescope and a 4-axis tracking mount for recording multiband photometric observations of artificial satellites. In the summer of 1966 and again in the fall of 1968, the Mobile Observatory was stationed on Palomar Mountain in southern California, about an hour’s walk south of the Hale 200-inch telescope. Our small group observed selected satellites for NASA almost every night during the two eight-week missions — perhaps few observers have spent more nights on Palomar Mountain.

Since I will be talking about satellite photometry at the July 26th WCAC meeting, I'll skip the technicalities here and try instead to capture a few personal kaleidoscopic memories, or essences from the enchanted mountain.

For an interlude of about 50 years, from the mid-nineteenth century until the turn of the twentieth century, Palomar was known as 'Smith Mountain" after the violent death of its first American settler. Newspapers of that period have called it "Mystery Mountain".

Palomar Mountain rests on a block of pink granite 25 miles long, 6 miles wide, without fracture and apparently invulnerable to earthquakes although it is bracketed by faults. For five million years this mountain has been gradually rising above the coastal plain.
In the early 1900's Prof. W.J. Hussey of Lick Observatory investigated Palomar Mountain as a possible site for a telescope subsequently located on Mt. Wilson. He wrote, 'Nothing prepares one for the surprise of Palomar. There it stands a hanging garden above the arid lands - on one side a land as desolate as Nevada, on the other side majestic slopes of pine.'

Leaving Pauma Valley in the late afternoon, a small road sign announced that I would be traveling the famous "Highway to the Stars". The road wound among the low foothills as the mountain loomed ever larger ahead. Indeed, this was the path of the astronomers - and the optics and structures as well. Now a sudden turn in the road and my next view was awesome. There was the mile-high wall of the Palomar escarpment. A mild expletive escaped my lips as I realized that I was about to climb that thing just to get to work tonight. And by a remarkable coincidence the car radio then began playing the then-popular rendition of Sergio Mendes and Brasil '66's "The Fool on the Hill". It seemed like it was meant for me. My climb became increasingly steep as I performed the many switchback hairpin turns and entered the National Forest. I crested the mountain just at sunset and followed the escarpment to my quarters at Skyline Lodge overlooking the distant Pacific Ocean.

As I scheduled the night's observations and marked the star charts a real live Mickey Mouse with large round ears - similar to the one claimed by Walt Disney to be Mickey's inspiration - scampered up my desk leg and sat fearlessly regarding me from across my desk. It was growing dark as I walked over to our observatory, using my flashlight to check the path for rattlesnakes. Above, the Palomar night sky was fabulous. A deer sauntered by not ten feet away. Our crew opened the observatory, set the telescope's initial 4-axis positions and checked out the instrumentation and recorders. I remember the hissing sounds as the photomultiplier tubes were cryogenically cooled through out the night.

One night our target was a newly-launched NASA satellite which needed to be sighted and measured as it first rose over our horizon. Because of the necessary zero-degree elevation, plus the 4-axis orientation of the guiding telescope on the very top of the larger telescope, the usual A-frame ladder arrangement to reach the eyepiece met with interference. So we quickly jerry-rigged a table surmounted by a chair, which permitted me to stand on the seat of the chair and thereby reach the guiding eyepiece. The brand new satellite was duly acquired as it rose above the horizon and the data was obtained. But in attempting to come down from my lofty perch I fell first from the chair and then from the table, landing seated on the observatory deck. Needless to say I hurt my dignity a little.

In keeping with the myth of the enchanted mountain, one night our 4-axis settings were independently re-set at three separate orientations and times to find coincidentally and unintentionally the very same star in our field of view. What is the chance of this happening?

Closing the observatory, after the final multi-band photometric stellar calibrations just before dawn, didn't end all chores. Each day the data had to be calibrated, identified, packaged and shipped to NASA. Meanwhile outside my office window a crowd of frisky ground-squirrels cavorted as my desk work went on. Then I went to bed at Skyline Lodge.