

Sky **WAA** tch

Eclipse Issue



Eclipse Issue

This issue is somewhat longer than the usual *SkyWaatch* as it focuses on club members experiences with the Great American Eclipse of 2017. We think it's well worth the time. But first a little nourishment courtesy of WAA's honorary Vice President for Confections Eva Andersen.

Eva baked a tray of eclipse cookies, complete with lunar shadow and solar corona, for the September 8th club meeting at Pace University. They disappeared a lot faster than the solar crescent during the partial phase of the eclipse.

Special thanks to Larry Faltz for compiling the eclipse stories.

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Events for October

WAA October Lecture

“Neutrinos: Messengers of the Universe”

Friday October 6th, 7:30pm

**Leinhard Lecture Hall,
Pace University, Pleasantville, NY**

Our speaker will be Dr. Georgia Karagiorgi who will describe DUNE, a mega-scale particle physics experiment planned by the international neutrino physics community. DUNE aims to study neutrinos and their properties with unprecedented precision. The experiment will be built in an abandoned underground mine in South Dakota, and will serve as an observatory for a high-intensity neutrino beam that will be sent, underground, from the Fermi National Accelerator Lab in Illinois, as well as for astrophysical neutrinos from the Sun and from potential supernovae. These neutrino observations will allow us to probe fundamental symmetries of Nature, peek inside the interiors of exploding stars, and ultimately help us solve the mystery of how our Universe came to be.

Dr. Georgia Karagiorgi is an experimental particle physicist at Columbia University. As a leading member of the Columbia Neutrino Group, she is involved in operations and data analysis for the MicroBooNE experiment at Fermi US National Lab, and in the design and construction of the future SBND and DUNE experiments. Dr. Karagiorgi holds a Ph.D. in High Energy Physics from MIT. Free and open to the public. [Directions](#) and [Map](#).

Upcoming Lectures

**Leinhard Lecture Hall
Pace University, Pleasantville, NY**

Our speaker for November 3rd will be Linda Zimmermann. She will speak on mysterious stone sites in the Hudson valley.

Starway to Heaven

**Saturday October 14th, Dusk.
Ward Pound Ridge Reservation,
Cross River, NY**

This is our scheduled Starway to Heaven observing date for October, weather permitting. Free and open to the public. The rain/cloud date is October 21st. **Important Note:** By attending our star parties you are subject to our rules and expectations as described [here](#). [Directions](#) and [Map](#).

New Members. . .

Satchi Anderson - Tuckahoe
Anthony Bonaviso - New Rochelle
Jeremy Pantlitz - Stamford
Chris Sordellini - Bedford Hills
Kiran Nistala - Tarrytown

Renewing Members. . .

Joe Geller - Hartsdale
Jose E. Castillo - Pelham Manor
Mark Korsten - Hastings on Hudson
Harrison Hurwitz - Scarsdale
Tom Boustead - White Plains
Patricia Mahon - Yonkers
Anthony Monaco - Bronx
Harry Vanderslice - Mamaroneck
Eileen Fanfarillo - Irvington
Jan Wauters - Larchmont
Leandro Bento - Mohegan Lake
Josh & Mary Ann Knight - Mohegan Lake
Robbin Conner - Millwood
Glen & Patricia Lalli - White Plains
Michael Lomsky - Wilton
George & Susan Lewis - Mamaroneck
Miriam Beveridge - Scarsdale
Owen Dugan - Sleepy Hollow

Vendors of Interest

- Adirondack Public Observatory is conducting an astrophotography workshop on October 19-22, 2017. For details consult their [website](#).

Please Note: The above vendors are unaffiliated with WAA. WAA does not endorse their services and references them for informational purposes only. Please check directly with the vendor for applicable fees.

Call: 1-877-456-5778 (toll free) for announcements, weather cancellations, or questions. Also, don't forget to visit the [WAA website](#).



ALMANAC

For October

2017 by Bob Kelly



Oct 5



Oct 12



Oct 19



Oct 27

So many planets seem to have stage fright this month. Mercury and Jupiter are hiding in the Sun's glare. Saturn is low in the southwest. Venus is low in the dawn sky, but still dazzling, even near its dimmest. Mars climbs past Venus, also across the solar system from us.

While there is still much to see, live and in-person, the Solar Heliographic Observatory will be a popular way to view bright objects as they appear to trespass into the most intense solar glare. Mercury will pass through SOHO LASCO C3 instrument from right to left for almost all of October, and be caught by the narrower view of LASCO C2 for a few days from the 6th through the 11th.

Jupiter nearly passes behind the Sun from our point of view. It's visible after midmonth in the C3 (October 16th through November 5th) and in the C2 from the 24th through the 28th. Conjunction with the Sun will be on the 26th.

Spica takes Regulus' place as the bright star in the C3 field this month.

Comet P96/Machhotz is streaming into the inner solar system, reaching perihelion by October 27th passing inside the orbit of Mercury. It gets as bright as magnitude +2, but it (too!) will be in the Sun's glare from Earth's point of view. Use the SOHO C3 to see it sweep through from bottom to top of the C3 field October 25th through 30th.

What's a bright object guy to do? Stay inside and watch the SOHO feed? Saturn is sliding into the haze and fog in the southwestern sky. Its setting time advances by two hours to before 9pm by the end of the month. The Moon comes by to provide consolation on the 22nd and 23rd. Consider that the earlier darkness and lingering warmth makes October a good month to show off the brighter stars and Saturn to crowds of people; so all is not lost. Saturn's rings are still tilted wide open at 27 degrees, the largest for 2017. Titan makes two trips around Saturn each month. Iapetus is brightest and farthest west of the planet around mid-month. It's nice to see another place we humans have left our mark, thanks to the Cassini/Huygens mission.

Venus is trying to hold on in the pre-dawn sky, rising less than two hours before sunrise. It's a blob in the telescope, growing past 90 percent illuminated this month, while shrinking to 10 arcseconds wide. Mars is even smaller at 4 arcseconds; and much dimmer at magnitude plus 1.8 vs. Venus' minus 3.9. Mars starts October within a degree of Venus and slowly trends upward from Venus. Regulus and Leo have gained 30 minutes on the morning planets. The Moon joins the morning party on the 17th and 18th.

The Moon takes its revenge on Regulus for photo-bombing the total solar eclipse by eclipsing Regulus in the dawn sky on the 15th. Regulus will disappear behind the Sunlit crescent about 5:44am and reappear on the Earthlit edge about 6:43am. Sunrise is 7:07am.

Early risers have an advantage thanks to daylight time as the latest sunrise of the year, according to clock time, occurs in the last week of the month. Risers at 4am will get to see Orion standing up high in the southern sky. Orionid meteors are an early morning bonus with up to 10 more meteors than usual on the 21st and a day before and after.

There is a well-placed comet in the northern skies. C/2017 O1 was discovered in photos from July 19th taken for the All-Sky Automated Survey for Supernovae (ASASSN) program. O1 is forecast to brighten from magnitude +9, to perhaps 6 or 7 as it passes perihelion beyond the orbit of Mars in October. O1 is up all night, but highest in the morning as it moves from between Perseus and Auriga into the Camel - Camelopardalis. Its green color is from diatomic carbon and may be visible in telescopes; even more likely to show up in time exposures.

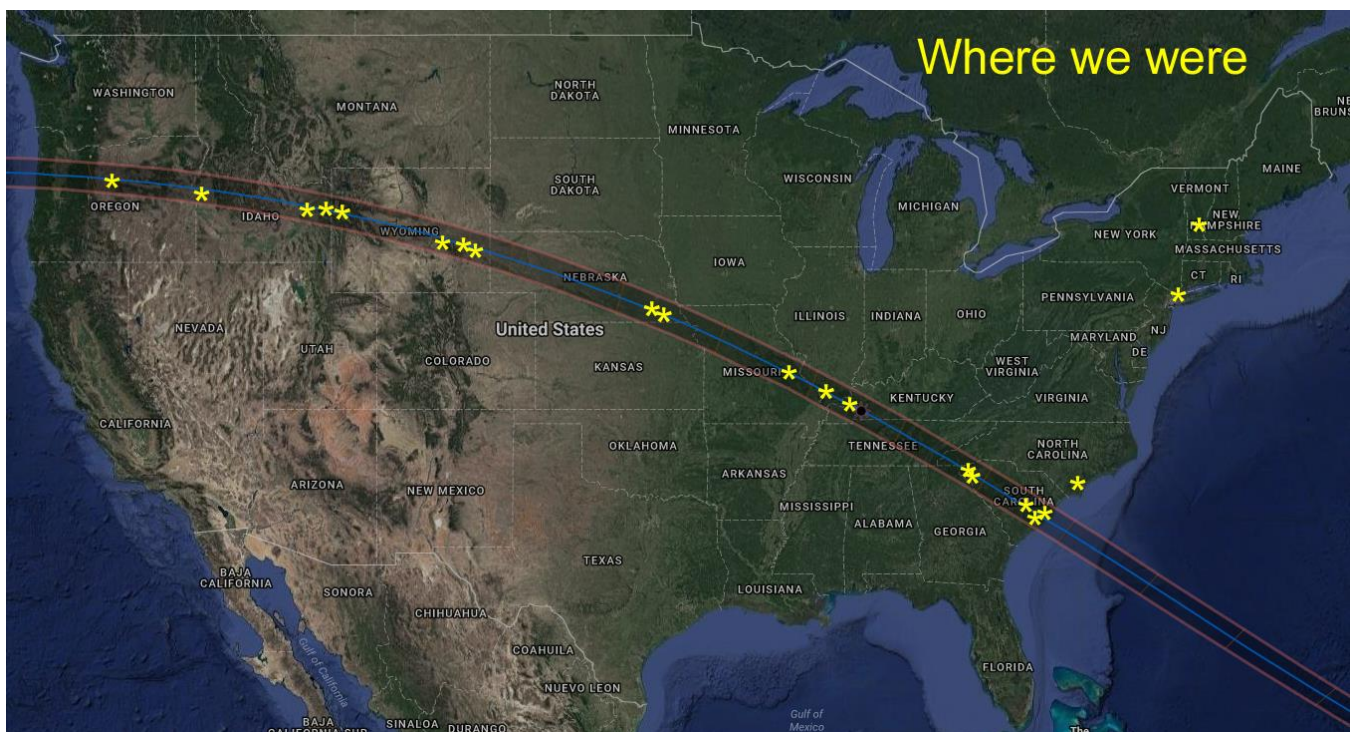
Uranus' opposition occurs on the 19th at magnitude + 5.7 and it's the same apparent size as Mars. Neptune is dimmer at +7.8 and looks even smaller than either Mars or Uranus at 2.3 arcseconds wide. Neptune is about a degree east of fourth magnitude Lambda Aquarius. Don't confuse it with sixth magnitude 78 Aquarius to Lambda's north. Uranus is two degrees north of fourth magnitude Omicron Pisces.

WAA Members View the Great American Eclipse



Composite image by Eric Baumgartner (TMB 80 mm f/7.5 refractor, Nikon camera). From Victor, ID

It may be, and we hope it's true, that every member of Westchester Amateur Astronomers took a good look at the August 21st solar eclipse, with many traveling to see totality. Vast numbers of Americans spent at least a few seconds observing the phenomenon. For almost all, it was a first-time experience. We asked WAA members to send us stories and photos of their eclipse experience, whether partial or total, and here they are, with as little editing as possible. The order is alphabetical. Images (up to 3) follow each member's text and are reproduced with minimal cropping (so we didn't futz around much balancing the columns to eliminate white space).



Paul Alimena (total, Madras OR)

In the years since our last experiences in the moon's shadow, Judy and I had discussed many possible viewing locations for the upcoming Great American Solar Eclipse of 2017. Having observed totality twice before and knowing what was at stake, we wanted to maximize our chances of clear skies and another successful observation. Historical weather patterns showed that Oregon, Idaho and Wyoming had favorable prospects so we began a search for our place along

that section of the path of totality. We found the Oregon Solarfest in Madras, OR, a 5-day festival in partnership with NASA providing science seminars and musical acts along with vendors selling food and souvenirs and, most importantly, a reserved parking spot. This site in the high desert plains of central Oregon offered a high likelihood of favorable conditions on the morning of August 21.

With our travel reservations finalized more than a year beforehand, we flew to Boise on Thursday, August 17

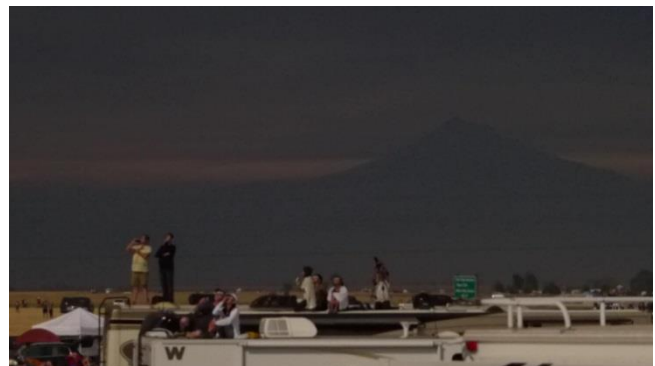
to begin our trek. We departed Boise with a rented RV under a deep blue sky stocked with a full tank of gas and provisions to last us through the coming days. We drove through smoky conditions due to forest fires but were rewarded by a clearing sky and fresh air as we turned north from Bend, OR. We also successfully circumnavigated the hordes gathering for the “Symbiosis Festival” in the Ochoco National Forest outside of Prineville, the site of a “30,000 person bubble of free self-expression, dancing and yoga” which was scheduled to coincide with the passage of totality, creating long lines of traffic backing up for miles in central Oregon, shown prominently on TV.

The volcanic peaks of Mt. Hood, Mt. Jefferson, The Sisters and Mt. Bachelor peered out from smoky haze on the western horizon 30 to 50 miles in the distance as we parked our RV and settled in among new friends. A few were fellow amateur astronomers but most were eclipse novices who were unaware of how truly extraordinary their adventure would become. At the Solarfest Festival on the Jefferson County Fairgrounds NASA speakers gave talks, tribute bands covered many rock and country groups, and vendors sold their crafts, tee shirts and jewelry to commemorate the event. The festival was a unique undertaking and while some aspects could have been managed more effectively, this town of 6,500 hosted and entertained tens of thousands of visiting umbraphiles in a once in a lifetime effort.

Eclipse morning was mostly clear although the hazy horizon was more prominent than in the previous days. The sun was strong even at the 9:06am PDT first contact with sharp shadows cast and a temperature of 79°F. During the progress of the partial phase bright Venus became visible high overhead. It had been 11 years since my previous eclipse and the moment the brilliant diamond ring appeared with the beautiful corona bursting into view around the jet blackness of the moon I was stunned by the realization that photos and videos had become my recollection of the sight. I immediately took in the laser sharp detail of a tripod of three streamers radiating out of the limb of the sun intensely against the steely blue-black sky, the stark contrast now my lasting memory. The binocular view showed one large prominence, coronal streamers arcing out in magnetic patterns circumferentially around the sun and the star Regulus to the lower left.

We distinctly felt the temperature drop by nearly 20° and a cool wind gusting in the moments before totality. I had set up a camera on the roof of the RV aimed

at Mt. Jefferson 32 miles due west of us to record the approach of the moon’s shadow at 2,200 mph on the mountain and across the plain. The resulting image was initially clouded by the smoky haze on the horizon but clearly showed the silhouette of the peak fall into shadow followed by our observing group about 45 seconds later, then the reappearance of the snow fields on the mountain and the reemergence of our area from darkness to light at the end of totality. I have included a couple of frame grabs to illustrate the progress. I realized the unusual effect of the light of the solar corona on our environs made the encounter with the moon’s shadow so unique. All my neighbors expressed delight and were grateful they made the trip as our newly formed community began to disperse in the hours following the eclipse. Despite the large number of people at the festival, our actual viewing site was detached from the crowd and we took in the eclipse in relative calm while still having the fun of the reaction of the multitude to the sight. We waited until early the next morning to leave unimpeded by traffic and made our way along Route 26. Next up, a look at weather patterns for future eclipse adventures!





Eric Baumgartner (total, Victor, ID)

Two years to the day before the Great American Eclipse, I reserved rooms in a new bed & breakfast that was 2 miles south of eclipse centerline in Victor, Idaho, a town in the Teton Valley. Totality would last 2 min. 19 sec. Historical weather patterns for the area in August were nearly as favorable as those for Oregon, but this quiet corner of Idaho also held the promise of being less congested. Our eclipse party numbered four couples, including Larry and Elyse Faltz of the WAA. This was Katherine's and my first total eclipse, but contrary to all the warnings from experts and experienced eclipsers, I was dead-set on photographing it. My long-suffering and pessimistic wife predicted disaster, and resigned herself once again to living with a madman.

As eclipse day neared, we nervously watched the weather reports, paying special attention to the smoke haze resulting from wildfires in northern Idaho and British Columbia, and read the warnings from the Teton Valley chambers of commerce that unanimously predicted "eclipse Armageddon" in the sparsely populated valley. Eclipse tourists were urged to pad their wallets with cash, top off gas tanks, carry in necessities like drinking water and food, and most of all, exercise patience in traffic gridlock along the valley's sole north-south road. Happily, none of these doomsday predictions came true—much to the chagrin of local merchants, I'm certain.

We arrived in Victor early on Saturday under clear skies, which gradually clouded over with high overcast and smoke haze overspreading from the north. The forecasts for Monday promised more of the same, but as the big day neared, improving conditions were predicted.

Monday morning dawned with scattered broken clouds, which quickly dissipated with the rising sun. The rest of the day was graced with the American

West's fabled Big Sky, which blessed our little eclipse party with pristine conditions. We were beside ourselves with anticipation and pinched ourselves repeatedly to ensure that it wasn't all a dream.

Two 600 mm telescopes comprised our eclipse setup. Tandem-mounted on a portable Takahashi PM-1 German equatorial tracking mount were a Takahashi FS-60CQ for visual and a TMB 80 f/7.5 for photography. The payload overtaxed the little mount, which was rated for 11 lbs. Once DSLR and assorted doodads were bolted on, it was supporting close to 20 lbs and strained under the load. In the hour leading up to the start of the eclipse, I fiddled and fussed with balance, but as the minutes ticked away, I ultimately resigned myself to continually recentering the sun as excess weight introduced image drift. Things weren't going as planned, and the eclipse hadn't even started.

At 10:16 the Moon took its first nibble out of the sun's limb. This was it: the culmination of two years of planning, studying, practicing, and fretting. I snapped photos on 4-minute intervals, and watched the waning crescent sun through the other scope in between exposures. As the moon overtook the sun, it covered the sunspot groups: first AR2671, and as totality neared, AR2672 on the eastern limb. The Teton Valley was bathed in an eerie light as the eclipse deepened, as if viewed through polarized sunglasses. Elements of the landscape sharpened as the sun shrunk and approached a point-light source. We watched our shadows snap into focus, and marveled at the myriad solar crescents underneath a stand of quaking aspens in front of the inn. I kept to my 4-minute photographic schedule, but as totality loomed, everything seemed to move in double-time.

Totality, which commenced at 11:36, came as a complete surprise. How was that possible, when we had spent the preceding 78 minutes counting down to it? I momentarily lost my concentration to the breathtaking phenomenon, but regained my composure and remembered to remove the mylar white-light filters from the telescopes. The telescopic view was extraordinary, but time was short, so I returned to the camera to shoot an HDR series of the luminescent corona. My carefully considered plan—9-stop bracketed exposures from 1/4 to 1/1000 sec.—got swept away by the spectacle. A perfectly round soot-black hole pierced the deep twilight blue sky, its pitch blackness accentuated by the shimmering white coronal ring.

And then, just as suddenly as it began, totality was over. I managing to image the fleeting diamond ring,

and then returned to my plodding 4-minute shot interval for the remaining 83 minutes of the eclipse. Success!

Believe me, no one was more surprised than Katherine.

Eric's spectacular composite sequence is at the top of this article.



Tom Boustead (total, Charleston, SC)

Shortly after noon the Sunday before the eclipse my wife and I checked into the Two Meeting Street Inn in Charleston. The choice of venue represented something of a compromise—we were inside the path of totality and could enjoy a beautiful, romantic city to celebrate our 35th anniversary. The drawback was the down-south heat and humidity index of over 100.

The Inn is an elegant, Queen Anne mansion; its large wrap-around porch offers copious shade and a beautiful view of the Battery and Charleston harbor. Thoughtfully, the staff keeps the porch plentifully supplied with lemonade and peach ice tea (hydration is important). After checking-in, Mary Ann and I strolled about a mile north towards the City Market. The scenic route with its 19th century mansions crossed Tradd and then Broad Streets, providing a memory jog of Pat Conroy's wrenching novel, *The Lords of Discipline*.

The City Market features numerous in and outdoor shops with local crafts and artwork. After window shopping for an hour or so, Mary Ann and I took a horse drawn tour of Charleston's Historic district. It was fun. The knowledgeable tour guide steered a two-ton horse through the city traffic while describing Charleston's numerous old churches and buildings. Despite the heat, contemplating Charleston's still-standing Old City Jail sent a chill through me as we passed. After the tour, we regrouped briefly at the Inn,

and then walked to Poogan's Porch for a dinner of shrimp and grits.

The day of the eclipse there was a palpable buzz. At breakfast on the porch I briefly chatted with a couple who had traveled from the Netherlands to see the event. After breakfast, Mary Ann and I walked the half mile to the Gibbes Museum. The museum had scheduled its own eclipse event including speakers, a solar telescope, and streaming video of the eclipse. We opted instead to view the Museum's collection of Low-Country art. This included Grainger McKoy's breathtaking sculpture of a common-tern.

After the museum, we caught lunch and walked to the Battery, which is a seawall and promenade abutting the harbor and the Ashley River. It's next to White Point Garden Park and close to the Inn. I wanted to see if the eclipse shadow would be traveling up the Ashley. We staked out a spot about 1:30—the eclipse was kicking off and the crowd was large.

As you can see from the photo, clouds were going to be a problem. This was my first total eclipse and I had read warnings about eschewing photography on your first time. Totality is too short, or so the argument goes. On reflection I'm not sure this is good advice if you plan and are properly equipped.

Anyway, we relied on eclipse glasses and my iPhone camera. My first glance of the Sun showed a partially obscured solar disk (10% maybe) with the Moon intruding from the 2 o'clock position. Clouds indeed became a problem. So the views were intermittent. Still the crowd was into it in a New Year's Eve kind-of-way.

As totality approached, it became progressively and noticeably cooler. I kept intoning the astronomy gods to relocate that sucker-hole or at least thin the clouds. In fact, the clouds did thin. I was able to view the diamond ring effect: memorable.

The crowd began cheering the eclipse. I checked the river, but never saw the eclipse shadow on the river—it was diffused out by the clouds. I slipped off my eclipse glasses to view totality. The corona had a ghostly appearance through the thin clouds. Too mesmerized to observe, I could only stare at the corona, speechless, as it shimmered. About a minute later the crowd cheering died away and I replaced my eclipse glasses. Soon thereafter we retired to the porch to rehydrate with iced tea. There I resolved to view another total eclipse again soon.



Rick Bria (total, Menan, ID)

We observed the solar eclipse from Menan, Idaho, located less than 4 miles south of the shadow center. The eclipse duration at that location was 2 minutes 16 seconds. The sky was crystal clear and the air temperature 65 degrees with almost no wind.

The outer corona was spectacular, as was the huge prominence that appeared toward the end of totality.

The first image is the very first image I took during totality. It's a very short exposure intended to show Baily's Beads. These occur at the beginning and end of totality when shafts of the Sun's photosphere shine through valleys and craters on the Moon's limb.

Toward the end of totality, the Moon had moved to the east and exposed a group of prominences on the west side of the Sun, as seen in my second image. Prominences are eruptions of hydrogen and helium plasma from the Sun's photo-sphere. The largest prominence measures about four times the size of the Earth. A close-up is included at right.

This exposure also shows the bright inner corona, but it does not do all the features of the eclipse justice. The human eye is able to see prominences, the bright inner corona AND the faint outer corona simultaneously. Eyes and brain work together to show the eclipse with almost indescribable beauty. A camera

cannot record that wide range of brightness in a single picture. In the digital age, it is possible to combine different exposures of the eclipse into a single, more detailed, High Dynamic Range image. In my opinion however, nothing can replace seeing it “live.”

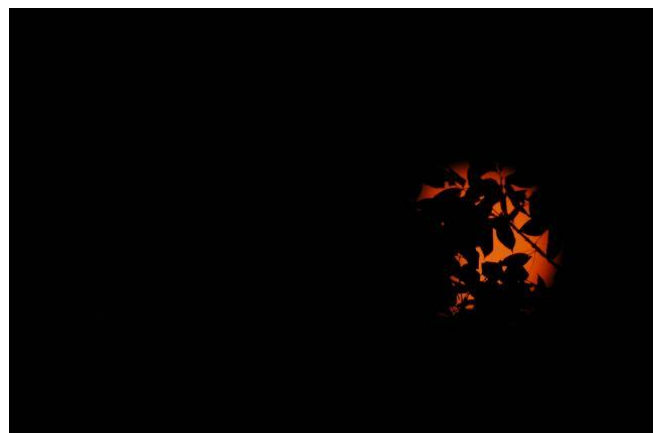
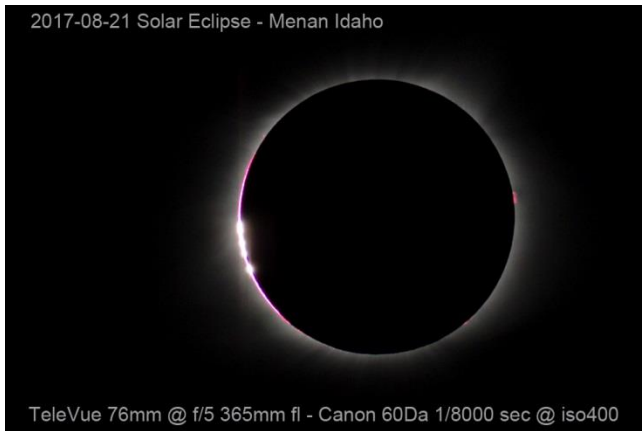
The final picture was purposely overexposed (1/10 second) to show the shape of the outer corona. The outer corona had three delicate streamers extending about two solar diameters away from the Sun. The streamers were absolutely mesmerizing and visually stunning. It took me totally (no pun intended) by surprise. Single camera exposures do not capture the complex and delicate character of the corona. The overexposure shows the lunar surface in reflected earthshine. Zoom in to see it better. Two stars were recorded in this picture. Regulus is the star to the left (east) of the Sun. Nu Leonis is the much fainter star to the right (west) of the Sun. Seeing these two stars in the picture reminds me of the famous test of Einstein's Theory of General Relativity in 1919 by Sir Arthur Eddington. This picture however, does not have the resolution or geometry necessary for that measurement, nor was it meant to.



Mike Cefola (partial, Springfield, VT)

When the eclipse was near ending stages, the sun started to dip behind trees from my deck in Vermont. Instead of packing up, we decided to enjoy nature's beauty, leaves and all.

The shots were taken through Stellarvue 80mm Raptor refractor using Spectrum glass solar filter. Nikon D60 at ISO 100 and 1/400sec exposure. At those settings, sunspots showed up clearer in contrast to solar disc color.



Owen Dugan (total, Guernsey, WY)

We originally planned to drive from western New York to the Great Smoky Mountains to see the Great Eclipse of 2017. However, the RV we reserved for the weekend of August 19th had a mishap – its engine blew up! This complicated our plans, and we thought we would just hop in our car and drive 9 hours to see what we could. After reading about the traffic that was expected, we realized this plan was speculative at best.

In late July, we decided to meet friends in Denver and drive to Wyoming to see the totality. My dad contacted all the RV rental shops within 2 hours of Denver and reached out to 20 RV owners on RV-Share.com. All of the RVs were booked. Luckily, the stars aligned, and a person who had just purchased a tow-behind RV trailer that day reached out to us. We jumped at the chance!

Now that we had an RV trailer, we had to figure out how we were going to tow it. All of the national rental chains were booked. Fortunately, we found the last available pickup truck at a truck rental company – a large, black RAM 1500.

Now all we needed was a destination. Our friends started researching Wyoming campsites and sent us a list. As expected, they were sold out! We heard about a town in Wyoming named Guernsey that opened up its high school football field to campers. They were also fully booked, but had a link on their website about a local farm that was renting spaces for dry campers – an 88 acre field outside Guernsey for \$75/night, 3 night minimum. Given the rates we had seen at hotels, this seemed like a steal! We booked on the spot.

We arrived in Denver on Saturday, met our friends, and picked up the truck and trailer. The Denver news was predicting massive traffic jams all weekend, with the return trip delays expected to reach 8-9 hours – the equivalent of simultaneously emptying eight football stadiums after a Denver Broncos game. The population of Wyoming, roughly 600,000 people, was expected to double over the weekend. With these dire predictions in mind, we headed to Guernsey on Saturday.

Upon arriving, we found a chaotic but quaint town of about 1100 people invaded by thousands of eclipse tourists. We made our way through town, past the high school football field full of tent packing stargazers, and out across the farms and fields to the

town's outskirts. Our camp site was the widest open area I have ever seen, with miles of uninterrupted views in all directions at an elevation above Guernsey. It was an ideal setting for viewing the eclipse.

The owner of the property, a short-spoken, bearded diesel mechanic who repairs engines on the Mississippi, guided us to our camp site, where many more campers were expected. In reality, there was only one other group – a husband and wife from New Mexico. It appears the neighboring farmer was charging only \$30/night with no minimum.

The lack of other campers made our experience even better. We quickly became friends with the couple from New Mexico and their playful golden retriever Sasha, and my brother and I got to practice our driving skills in the open field.

The night before the eclipse, we set up our 6" Schmidt-Cassegrain and had amazing views of Saturn. Unfortunately, our telescope's computer thought we were still at the Maine Astronomy Retreat, so we never got the alignment working. We opted for night-scape photography and just staring at the night sky.

On the day of the eclipse, I woke early and set up alarms on my dad's iPhone – first contact, shadow bands, the moon's shadow, and totality. We cut holes in paper plates to make pinhole projectors, gathered our eclipse glasses, and loaded our pickup truck with snacks. Our friends from Denver came up too. There were no shadow bands, but because we could see for miles the shadow racing toward us was awesome! I had never seen totality before and it was better than how everyone described it-- two-and-a-half minutes of otherworldly amazement! We did not take any pictures, as recommended by everyone we talked to, and instead just enjoyed the experience.

After the eclipse, we slowly packed up our trailer and headed back to Denver. It was slow going, but it did not feel that way because of the excitement that had just happened!



Ed Edelmann (total, Milligan, NE)

We were determined to see the eclipse, but where? Checked on the likelihood of fair skies August 21. But the further west on the line of totality (and clarity), the more crowded and expensive it would be. So we traced totality back eastward to prairie we knew just south of York, Nebraska.

Reservations made in mid-July, my wife Karen and I flew to Omaha, August 18, and picked up a car; Saturday we met up with her Indiana brother who joined us. We stopped in Lincoln to enjoy prairie-inspired painting and photography, looked west toward York from the top of the state capitol, got back on I-80 and checked into our motel.

That evening we all had dinner with a friend whose farm was six miles from our ultimate destination, Milligan Nebraska, population 285. She said the line of totality crossed the road in front of her place and then her fields, so we wouldn't likely see her Monday.

Earlier, when Milligan friends heard we were coming, they said, "Come down Sunday, we've got some things going on to celebrate Nebraska's 150th and we can eat at the new place." We joined them at a Veteran's Memorial dedication, stopped at their local historical sites, chatted with a re-enactor telling the story of Millard Fillmore, the county's namesake, and had an early dinner. [*Fillmore was born in New York. Ed.*]

On the road by 9 am Monday, we passed repeated scenes of porta-potties in the middle of fields awaiting anticipated crowds. On dusty corn and soybean farm roads, couples and families sat sheltered by big umbrellas behind pickup trucks, all looking sunward.

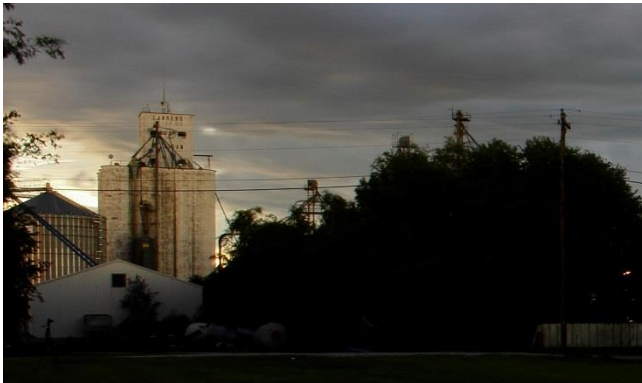
When we arrived, Milligan's farmers and town folk, mostly of Czech descent, had put together an eclipse party in the town's park and were already enjoying beer, brats, pork sandwiches and music -- Polka in the Dark. At 11 we put on our glasses: it was about to begin. I had traveled light, figuring I'd see remarkable images published later. So it was rewarding to help a man and his son set up their filter-equipped telescope to track the eclipse. He said his software wouldn't let him orient with the sun. "What about the moon?" I asked. That worked.

A grain elevator and a decommissioned church anchored the park's southern landscape. We looked nearly two darkening hours mostly in that direction. The clouds became thinner. The street lights came on. But the dome of darkness was sudden and greeted with applause first and then silence. Stars and a planet overhead, blue skies on the northern horizon. About two minutes and a few seconds later, as suddenly as the dark, a surprise strobe-flash of silvery light. More music. Some danced. The man I helped with his telescope told me that they viewed the whole eclipse, were excited to have seen solar prominences and thanked me.

You don't see it. You experience an eclipse.

So, after goodbyes, we escaped the I-80 post-eclipse traffic jams, making an end run around Lincoln and Omaha, crossing the Missouri toward Council Bluffs, Iowa, to reach our motel. We caught a 6:20 am Tuesday flight from Omaha to Denver and spent the balance of the week in Rocky Mountain National Park, memorably celebrating my 80th birthday in advance.

My pictures are (1) Milligan's landmark Farmers Co-op grain elevator as totality neared, (2) me and my brother-in-law Ed backgrounded by the Kansas Wildcats, and (3) a tiny section of an 18 mm wide angle shot of totality.



Larry Faltz (total, Victor, ID)

We started planning for the eclipse in 2015 right after Sky & Telescope published a cloud-cover map that showed eastern Idaho with one of the highest likelihoods of clear skies. WAA member Eric Baumgartner took the planning lead and found a bed-and-breakfast in the Teton Valley just 1.7 miles from the center line that could accommodate our party of 8 for 4 days: Elyse and me, Eric and his wife Katherine, Connecticut astrophotographer Ruben Kier and his wife Stephanie and Massachusetts amateur astronomer Steve Salloway and his wife Erin. This would be my second eclipse (1970) and Elyse's first: our one attempt as a couple crashed under the clouds in Hawaii in 1991. Recognizing that there's no guarantee of clear skies, we planned a two-week vacation with the eclipse right in the middle so that even if we were clouded out, we'd have plenty to do. We made a loop starting in Salt Lake City through Ketchum Idaho, Butte Montana, Victor Idaho and Yellowstone National Park, before returning to Salt Lake City and then home.

The week before the eclipse we were all somewhat fixated on the weather projections, which were initially a little iffy, and various ideas for emergency relocation strategies were floated in a flurry of emails. Fortunately, the weather couldn't have been better. When we got to the Dreamcatcher B&B in Victor on Saturday, we realized that Eric had picked the perfect place. Dreamcatcher is a modern and spacious inn run by some delightful people who accommodated our every need. The large lawn was ideal for our imaging setups (and for stargazing under dark skies). The owners, John and Aline Sarria, had decided to host a catered eclipse party for about 80 people with a tent set up in

the expansive backyard, but their presence was not a distraction and the friendly and enthusiastic crowd made all the right noises at totality.

During the partial phase, we observed crescent-shaped shadows on the driveway under a tree. We returned to our cameras and scopes for final adjustments. The cloudless sky began to darken, the temperature dropped and anticipation rose. A few seconds before Baily's beads came into view I took off my eclipse glasses and removed the solar filter on my camera lens. Totality was more breathtaking than either anticipation or memory could have made it. The sky was a deep, deep blue-black fading to a yellowish-pink rim on the horizon. Venus blazed 35 degrees to the west of the eclipse. The ultra-white, asymmetric corona contrasted with the blackest black moon. A few pink prominences were visible, especially at the end of totality. Both Elyse and I had moments when tears welled up in our eyes.

My tripod-mounted Canon T3i was fitted with an early-generation Canon EF 75-300 mm lens (purchased new for the occasion for \$85). I took seriously the admonition that time should not be wasted on imaging. After manually focusing on the crescent phase, setting the lens to $f/8$ and the camera to ISO 200, I captured images using a remote shutter release at various shutter speeds by blindly rotating the camera's control wheel, first one way then the other, keeping my vision fixed on the spectacle overhead. My totality image, exposed for the outer corona, is 1/10 second. Regulus is just visible to the lower left (zoom to see it), proving that the sun is indeed in Leo on August 21st. I used a Sony point-and-shoot to take the wide-angle shot, but a camera is simply incapable of reproducing the naked eye view and words cannot accurately report the experience. Not even poets can do that. Being there is *all* the fun.

In addition to the eclipse, we did something interesting every day on our trip, much of it serendipitous. In Ogden, Utah, we took in a minor league baseball game, made all the more enjoyable because our AARP membership entitled us to a ticket, hot dog and soda for \$6. We came across Experimental Breeder Reactor #1 at the Idaho National Laboratory, the first (1951) nuclear reactor to make electricity and breed plutonium at the same time, now decontaminated and a National Historic Landmark and museum. In Butte we toured the World Museum of Mining and visited the fine Mineral Museum at Montana Tech University. We devoted nearly 3 days to the incomparable Yel-

lowstone National Park seeing hot springs, geysers, waterfalls, canyons, bison, an osprey with a fish in his talons, pronghorns and deer. We truly enjoyed the Idaho Potato Museum in Blackfoot, a must-see if you are in the area, and the small but well-stocked Idaho Falls Zoo. The Hill Aerospace Museum, half an hour north of Salt Lake City airport, was a surprise find on our last morning, suggested by our waitress at breakfast. It has a superb collection of military airplanes, armament and paraphernalia, and free admission.





Matt Ganis (partial, Pleasantville, NY)

Matt is on the Pace University faculty and arranges our access to the wonderful Leinhard Hall lecture room for WAA's meetings. He put together an eclipse outreach program at Pace and asked WAA to provide some support. We donated the few eclipse glasses we had left, and a number of members who were not traveling to totality rose to the occasion and helped with the event.

Matt sent us an email:

Just wanted to say thanks for all of the support with the Eclipse party at the University. There were several club members there with telescopes (thank GOD) or just to help out. We had about 300-350 people there (though there wasn't an accurate count). As I MC'd the event I gave several shout-outs to the club and I heard from several people how "nice and friendly" everyone was. Here's a picture of the event it was definitely a "zoo" ;-)



Charlie Gibson (partial, Pleasantville, NY)

Charlie, WAA's Senior Vice President, was at the Pace event, and reported "After a flawless morning, a thin stream of clouds kept our event at Pace interesting. It would tease us intermittently but the wispy clouds were a constant up through 4pm. We had around 300 or more people attending. It was announced in the Patch, along with Pace radio, so it was well publicized."

John Higbee (total, St. Clair, MO)

I'm originally from Missouri, so when we began to plan our eclipse expedition, the "Show Me" state was high on our list of places to go. When my brother suggested that we combine eclipse observing with my Mom's 92nd birthday party, Missouri jumped to the head of the list.

Carol and I decided to drive out to St. Louis from northern Virginia, and we arrived there on the Thursday before the eclipse. In addition to socializing with old friends, and celebrating with my Mom, we visited with the St. Louis Astronomical Society at their pre-eclipse meeting Friday at McDonnell Planetarium. It was fun to prepare for the eclipse with a big group of enthusiastic astronomers!

Our eclipse plans were originally centered on going to St. Clair (about 50 miles southwest of St. Louis) for close to the maximum totality available. During our visit with relatives, however, my cousin reminded me that she had a lovely house in the country with good skies, where we could set up and stay the night before, and avoid the predicted titanic day-of-eclipse travel problems. Although totality time was less at her house (2:00 vs. 2:37 at St. Clair), convenience and personal comfort won out!

Weather predictions for 21 August were "all over the map" ...literally. It looked like southern Illinois was the "sweet spot" ...with eastern Missouri iffy at best, and clouds predicted to increase throughout the morning. We had set up for a star party on Sunday night, which ended up observing a solid cloud deck! I went to bed with low expectations.

Monday morning dawned brilliantly clear, and stayed that way (except for small bands of high, thin clouds which passed through rapidly). Set up included my 1976 C8 with a white light filter; my daughter's RV-6, similarly filtered; an old friend's high-end DSLR with

telephoto lens, filters, and a sturdy tripod; and plenty of eclipse glasses.

After a great breakfast, we set to work. First contact was observed and photographed through the two telescopes...we had over 20 family and friends on site, many of whom got their first astronomy experience during this eclipse (“Wows”, “Oohs” and “Ahs” abounded!). As the Moon advanced over the Sun, we saw the “leaf camera” images of the crescent Sun all around the edge of the observing site.

Beginning about 20 minutes in advance of totality, the Sun’s light took on a surreal quality...normal objects looked preternaturally sharp-edged, and the sky took on a deep, polarized blue color that darkened rapidly as the eclipse progressed. In parallel with this, the temperature dropped significantly from the mid-90s. We saw shadow bands moving rapidly from west to east on the concrete of the observing area just before totality. “Baily’s Beads” were a beautiful lead-in to the blossoming of the corona as totality commenced...and we abandoned the telescopes to feast on totality with the naked eye. We did capture some superb shots of the corona via the DSLR set-up...including a glorious picture of the “diamond ring” at third contact, as the photosphere flashed forth and the corona disappeared!

It was an experience that none of us there will ever forget. Many of our group intend to get together seven years from now for the 2024 reprise. All of us checked the block on a perfect “bucket list” item completion!



Frank Jones (total, Steinauer, NE)

My adventure to see Eclipse 2017 took me to Omaha, Nebraska. I picked this location for four reasons: (1) I had a work friend who lived only about 25 miles from totality; (2) the weather chances at eclipse time were very good because the weather pattern there showed the sun burns away mid-day clouds. This turned out to be significant for my story; (3) the area has many small north-south and east-west secondary roads; and (4) if there was heavy traffic my friend knows the back roads around the traffic.

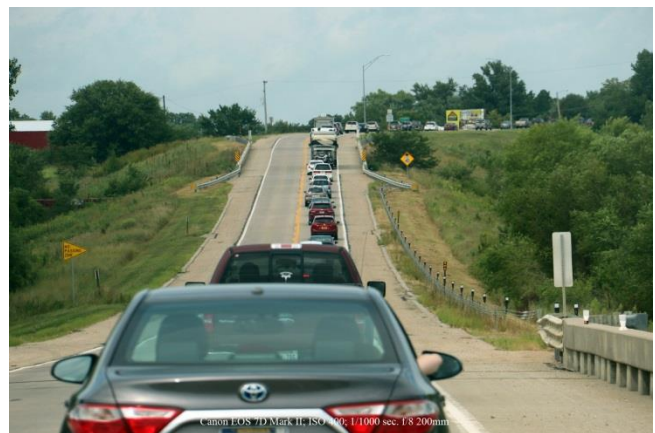
I arrived six days before the big day so I decided to checkout my target location of Beatrice. Beatrice has a population of about 15,000 and consists of basically two perpendicular main streets with a traffic light and

a couple of fast food restaurants. The north-south road was route 77, which carries all the traffic from Omaha and Lincoln. One of the town's people told me that they were expecting anywhere between 20,000 to 100,000 visitors and there were concerns that the town couldn't handle it. I had a concern that traffic, lack of parking and being able to move due to clouds would spell disaster so I considered another location, a gas station outside of Filley which is on the center line. After several days driving around Nebraska, I arrived at my friend's home in Springfield on Sunday afternoon. Then, Sunday night, disaster struck. Sunny days gave way to a night of heavy, loud thunderstorms. The weather forecast was grim.

Monday morning I awoke to mostly clouds and rain. I encouraged my friend to go anyway and as you can see from the picture, route 50 that normally has no traffic, looked like the BQE at rush hour. Luckily, my friend knew the back roads through the cornfields. He opened the sunroof and I could see the moon covering the sun through breaks in the rain and clouds. I felt I saw something so I was not completely shut out. Looking at the traffic turning to Filley and Beatrice and reviewing the weather radar, I decided we should continue on route 50 and drive to the intersection of routes 50 and 4. On the map it is called Steinauer but all I saw was lots of cornfields. One feature about this location is it is almost on the center line so I was hoping for a glimpse of totality. We left the traffic behind and drove to our new target. My guess turned out to be a good one. It was flat, with open east-west and north-south roads. At our intersection there were about ten cars pulled over hoping to see totality. We watched an ever-shrinking sun peak in and out of the clouds hoping for a miracle. I had decided to heed the advice of the experts to just enjoy the eclipse as a first time viewer and not try to take pictures. However, I read an article that provided some suggested camera setting for different phases of the eclipse. I decided to use the settings given for totality using blackening and multi-shots. As totality approached its scheduled arrival time of 1:03 CST, a dark cloud covered the sun. Then within two minutes from the start of totality the cloud passed and a crescent sun broke out along with a cheer from the small crowd. It got dark and the temperature dropped and we went into totality and you could feel the electricity from the small crowd. I reached for my camera and held it up towards the sun and fired the shutter and hoped for the best. Viewing totality was like looking at a painting of a large ball hung on a canvas in the sky. Then as the totality ended

we saw the "diamond ring" listening to cheers from the small crowd. We watched the moon move across the sun for another hour before the clouds once again moved in covering the sun ending our viewing.

I left feeling incredibly lucky and blessed that I got an opportunity to see the eclipse. I spoke to someone on the plane trip home who was outside of Beatrice and he said he did not see anything. A video from Beatrice showed the clouds parting after totality had started. Best lesson here is "Be Prepared!" By being prepared I was able to make last minute changes to get my best shot of seeing the eclipse. It turned out the sun did burn through and I was treated to the best 2 minutes and 37 seconds of a lifetime.





Bob Kelly (total, Clemson, SC)

With less than ten minutes until totality, one of the towering cumulus clouds that had been threatening to overshadow us moved in front of the Sun and Moon. Since we had discussed my background in meteorology, eyes turned toward me and I silently cursed myself for not timing how long that cloud took to cross the Sun/Moon. As I scanned the skies, I muttered something about how sacrificing meteorologists as an offering to the weather gods was not proven to be effective at holding off clouds. Finally, I said the next set of clouds were far enough east of us to hold off until well after totality.

Then the darkness arrived as if someone dropped a box over us. The air felt like we were sitting in front of an air conditioner. The corona flashed into feathery brilliance. The circular inner corona had details that made me wish I could draw. The spiky outer corona was dimmer, but easy to see. Venus, to my right, was as bright as I've ever seen it, gleaming but seemingly out of place in the suddenly dark blue daytime sky. I didn't see Jupiter to my left – I think it was covered by the oncoming cloud. My 8x25 binoculars provided excellent views, taking in the whole corona in wonderful detail. Regulus was easily visible to the upper left of the corona. All too soon, a pink rim appeared around the western side of the lunar limb. "It's the photosphere," I shouted. (Of course, it was the chromosphere, but I did correctly describe it as the dimmer layer above the blinding surface layer we typically see.) I thought "wow, totality really does go by fast."

At the 2, 3 and 5 o'clock angles pink prominences stood out from the Sun. In binoculars, the 3 o'clock prominence appeared like tiny pink Slinky toy arching over the dark limb of the Moon. The 5 o'clock prominence intensified until it looked like a red laser beam

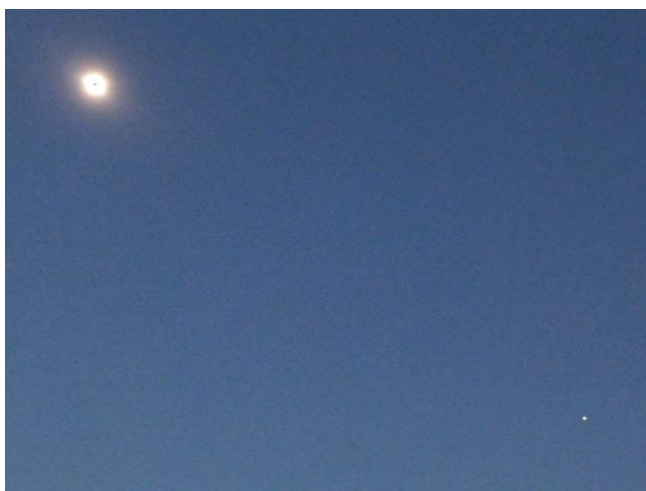
gleaming in the sky. (I wish I knew which lunar canyon it was shining through.) The pink lights seemed to cling to the side of the Moon forever. To think I had thought the show was over!

Finally, a pure white intense 'diamond ring' occurred, brighter than I thought was possible. I missed any Bailey's Beads as I turned away from the sunlight shooting through the gap at 5 o'clock where just seconds ago the pink prominence was so bright. The grass turned orange again as it had just before totality. Some people described the shadows as sharper; they just looked abnormal to me, beyond my ability to describe. Families with small children ran under the trees shouting joyously among the projections of delicately thin crescents. A few minutes later, I heard the calliope of cicadas. They had been making a racket all day, but I realized I hadn't heard them during totality. The clouds that had threatened us dissipated and stayed away for a half hour after totality. I had planned to get some better photos during the second half of the eclipse, but I sat under the trees and reviewed my photos from the Canon XS and Carol's Nikon Coolpix and the movies from my iPhone and Galaxy Tab.

Clemson University did a wonderful job. Clemson is used to dealing with large (think 50,000 football fans) crowds. I took them up on their offer to set up my tripods in the Carillon Gardens. When I showed up, I showed them my email and got a VIP badge. We had a view of the terraced landscape with crowds of people with and below us. In our section, skill levels ranged from seasoned observers (with solar scopes and up to 11-inch telescopes) to young families that settled in for the shade around the edges of the Gardens. Everyone was gracious and shared views and information, even the guy with several cameras feeding into a computer screen shielded by a cardboard box who let me know the timings when I tended toward sensory overload.

I met some fascinating people on the train from DC and back that night. Thank you, Amtrak. The trains left late but we had plenty of time to spare. Thanks for the Amtrak bus from Greenville, and the CATbus at Clemson.

One more word – thank you WAA for the eclipse glasses. Friends, family and co-workers were thrilled to see the partial phases and share in the experience of the eclipse across America in New York, Philadelphia, DC, California and who-knows-where the glasses went!



Gene Lewis (total, Casper, WY)

My wife Judith and I went west to observe the eclipse in Casper, Wyoming. Our first stop was in Aspen, Colorado for three nights. It's a lovely town surrounded by mountains. A highlight of the visit was a walk through the John Denver Sanctuary. Large boulders are aesthetically placed around a pond, a stream and in

an amphitheater-shaped space. The lyrics of several John Denver songs are inscribed on some of the boulders, as are quotations from others such as Ralph Waldo Emerson. A striking quote that will resonate with WAA members is from Carl Sagan: "The size and age of the Cosmos are beyond ordinary human understanding. Lost somewhere between immensity and eternity is our tiny planetary home." It is one of the most peaceful and spiritual places I've ever been. Both Judith and I were moved to tears.

After a couple nights in Boulder, we set out for Casper on the 20th. We shopped for food in Boulder, Colorado and then made the 4½-hour trip to Casper. We cooked our own dinner at the Residence Inn to avoid the crowds, and checked out the space we had rented at the National Historic Trails Center, which is on a high elevation above the town.

We arrived at the site at about 7:45 am on Monday and set up on our assigned space. Everyone had their name painted on the patio and a square outlined for them. We were among quite a few Italians who had made the trip over, as well as some folks from Belgium. The building is a museum with nice bathroom facilities (one of the main reasons for the choice!), a food truck, and other eclipse enthusiasts. All kinds of setups were in evidence: SCTs, refractors, cameras, etc.

We observed with glasses and binoculars. We used Lunt 8x32 solar binos on Benro monopods and glasses for the partial. At totality, I used my Canon 10x42IS and Judith used an Oberwerk 6x32 bino. We also observed with our naked eyes. When totality hit, Judith and I were overcome, tears streaming. It is so primal, elemental, I don't know what words to use. You are actually experiencing the workings of the universe in a very intimate way. The temperature dropped about 10-15 degrees when it reached about 90%. And the diamond ring at 3rd contact just blew us away. I had an app called EclipseTimer on my iPad, which was great. It had the timing down to the second and announced when to use glasses, when to look around for various effects in the environment, countdown to totality, etc.

The trip back to Denver was a nightmare, 13½ hours instead of 4½. They said 536,000 cars entered Wyoming. There are only 560,000 people in the state, so the population more than doubled! But it was totally worth it. Looking forward to 2024!



Kevin Lillis (total, Payette, ID)

This was a trip that I had planned over the past year. I boarded a 5:00 pm plane from JFK to Portland where I was to meet up with a photography buddy of mine, Jose Alvarado. We were to set out on an epic trip from Portland, Oregon through Idaho, Nevada, and Utah and finally end in Denver, Colorado. The trip mainly focused on the solar eclipse to which I painstakingly prepared for over the past 8 months.

I had packed small and smart with my Samsung NX3000 mirrorless camera, a Celestron 70mm travel telescope, solar filters for my eyes and my scope along with various other bits. I had picked a destination within the 70 mile band of totality, far away from anywhere: a little farm on NW 11th Avenue in Payette, Idaho.

Saturday morning we left the hotel in Portland OR and took off east along the Columbia River. Cutting south at Hood River, past Mt. Hood and heading south towards Madras, Oregon, past the solar viewing parties and into Bend. Severe forest fires were in the area and clouded the skies with a thick white smoke. I wished to see Crater Lake National Park, but when we arrived it was enveloped in the thick smoke.

Sunday Morning we took off from Bend to Payette, where we stayed with Lilly Walker and her husband Charles Walker who were nice enough to let us camp at the farm. We met with other families there who had traveled from Seattle and the Bay Area of San Francisco. We prepped our cameras the night before, practicing our timing and thinking about worst-case scenarios. It all wouldn't matter in a few hours because what I was going to see was spectacular.

Monday morning arrived and we woke from our tents to fresh coffee and muffins prepared by the Walkers. The sky was open and clear, we were far from the forest fires in the west and the forecast was perfect for the time of the eclipse. We prepped again and just enjoyed the build-up. The kids kept looking for the moon in the sky in excitement. I too was just as excited. I had prepared for this event for months and the culmination of my hard work finally came to fruition as the moon took a slight bite out of the sun at 10:10 am Mountain Time.

The sky began to become a darker blue, our shadows began to look strange and fuzzy, animals became restless. This was unlike anything I had ever seen. The eclipse progressed and I carefully observed with my solar glasses and began taking pictures with my set up. I have only gotten into astrophotography over the past year or two and these pictures were by far the best I have ever taken. Proud of myself, I became overwhelmed with what I saw next.

At 12:26 and 20 seconds Mountain Time, totality. It was the most beautiful thing I had ever seen. All the descriptions I read, saw and heard were spot on. I was left speechless and the darkness around me and the 360 degrees of sunset on the horizon. In the sky was this burning black hole that hovered there for what felt like a short time. This incredibly white/purple/blue light encircled that black hole and it almost didn't feel real. It was if someone was playing a trick on our eyes. The kids became excited, parents were struck in awe, I was delighted. I had 1 minute 48 seconds to get off a few shots and watch the remainder of it with my own eyes. I only took 4 pictures of the totality. That's all I needed.

Then at 12:49 it came to an end. The moon disappeared and that was the end of the Great American Solar Eclipse 2017. From there we said our goodbyes and took off for the Bonneville Salt Flats where I took some Milky Way photos, and eventually went to Salt Lake City. I was floored as to what I saw and still amazed today, over a week on. This was a trip I will never forget.



Arthur Linker (total, Glendo, WY)

Diane and I viewed the eclipse from Glendo, Wyoming. Not wanting to deal with hotel, transportation and other logistical problems that potentially could get in the way of successfully viewing our first eclipse, we chose to join Sky & Telescope's (S&T) eclipse tour, a 5 day experience originating in Denver. This proved to be a wise decision. There were a few more than two hundred people on this tour (five full busloads). The tour included a trip to Rocky Mountain National Park on the Saturday before the eclipse. We had never been in the Rockies or on a 12,000-foot

high mountain before, and this experience was amazing. On the way back to Denver, we visited the observatory at the University of Colorado at Boulder, which has not only a classic dome with a large telescope (which then was being refurbished), but a roll-off roof observatory with two PlaneWave Dall-Kirkham astrographs on Software Bisque Paramount mounts with SBIG-8300 cameras (with a flip mirror for visual observing), which are available for use even by undergraduates. Because it was mid-afternoon, the only target available to view was Jupiter, which I had never seen before during daytime using a large telescope.

We stayed in Cheyenne, Wyoming, the Sunday night before the eclipse. At dinner that night, we learned that S&T had pre-arranged viewing not only in Glendo, but also at two alternate sites (Riverton, Wyoming, and Arnold, Nebraska) in case it was cloudy in Glendo. But we were lucky. We learned that the forecast for Glendo was for zero cloud cover; and that proved to be entirely accurate. Anticipating much traffic on Monday morning, we left our hotel at 4:00 am. It took more than five hours to travel the 102 miles from Cheyenne to Glendo, including almost an hour to get off the interstate at the exit for Glendo, a town with a population of 206. Wyoming probably has never seen that much traffic in its entire history. The Glendo school had generously agreed to let us use its soccer field to view the eclipse, without asking for any payment. The tour participants, however, joined to give the town and the school a very nice monetary gift. The soccer field provided a wide-open view of the horizon and the sky.

The weather was perfect and there was not a single cloud in the beautiful blue sky during the entire day. As the eclipse progressed the temperature dropped and during the few minutes before totality shadows became noticeably more sharp-edged. Although we looked to see the shadow of the moon sweep in across the landscape, we really didn't see it. Totality, which lasted 2 minutes, 27 seconds, was utterly fantastic. What struck me the most was that the sun seemed much smaller in the sky than it appears during normal daytime when it is surrounded by glare and scattered sunlight, truly appearing visually as the same angular size as the moon. Moreover, the corona appeared to be such brilliant white light that no photograph can accurately convey.

Speaking of photographs, although virtually all of the people viewing the eclipse there had cameras, the vast majority had neither tripods nor telescopes. At the pre-

eclipse dinner, S&T senior editor Dennis di Cicco repeated the often-heard refrain that no matter how long totality lasts, it always seems to last only 8 seconds, and recommended strongly not fiddling with a camera and just taking in the experience visually. I somewhat followed that advice, deciding to attempt taking just a couple of pictures. My inexperience at photographing astronomical events showed itself. I managed to take only two pictures, the second of which was out of focus. I guess it wasn't a good idea to leave autofocus on, but I did use manual aperture and shutter (f/6.3 at 1/400) based on suggestions in the S&T eclipse issue. What I should have realized, but didn't, was the inadequacy of the stock DSLR lens; most of the photograph was black sky and the eclipsed sun therefore filled only a small part of the frame and thus too few pixels to show significant detail. A telephoto lens (which I don't currently own) would have been much better, with a tripod for the camera. Nevertheless, I am proud of "my" eclipse photograph, the cropped version of which I am attaching, together with photographs of the scene at the event and its participants.



Mike Lomsky (partial, Leland, NC)

I decided to stay with my family at my parent's house and we all saw a 96% eclipse together. I could have traveled alone about 5 hours round trip to totality in some small town in SC but thought better of it. It was nice to see it with Dad, who for medical reasons cannot travel more than an hour or so without stopping to walk for a while. Considering I drove home 10 hours the following evening through some heavy storms in Jersey, I think it was the right call. If I had remembered all parts of my telescope, I probably would have gone alone. I forgot the part of the mount that you connect the tube to.

At 96%, it was eerie, amazing and interesting. The colors changed. There is a pond behind my parent's home. Ducks went to their nests. Bugs went quiet. Turtles went to their sleeping locations. Watching the sun disappear to only a sliver just didn't look right. It was a little scary, and it would be terrifying had I not had the knowledge we all do as modern people. I could only imagine what someone from 1000 years ago, or longer, would have thought.

We used my solar wedge to look at the sun. It helped provide views when the clouds obscured the early parts of the eclipse. The skies cleared after the first hour or so. When they did, I added the polarizing filter as the sun was a bit bright.

While I am sad I forgot the mount, and I would have liked to have seen totality and I would have driven to it if I had the scope, it was great to view to with my

family. You can be sure I will not forget all the pieces for the next one. 96% was truly amazing in its own right.

John Paladini (partial, Mahopac, NY)

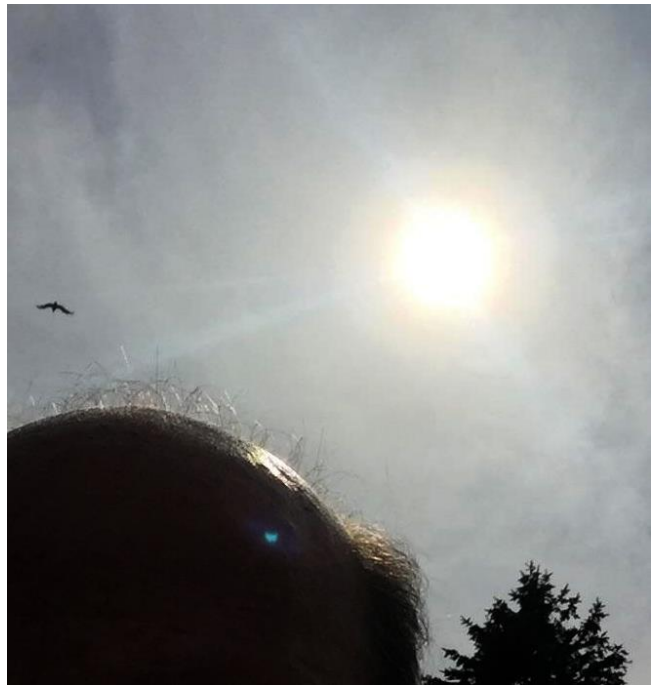
John, WAA's resident technical genius, tends to write emails and text messages in a kind of compact poetic code, almost a form of haiku. Here is his report, verbatim:

not much to say missed main event
did help neighbors watch partial

near max PST α 70%

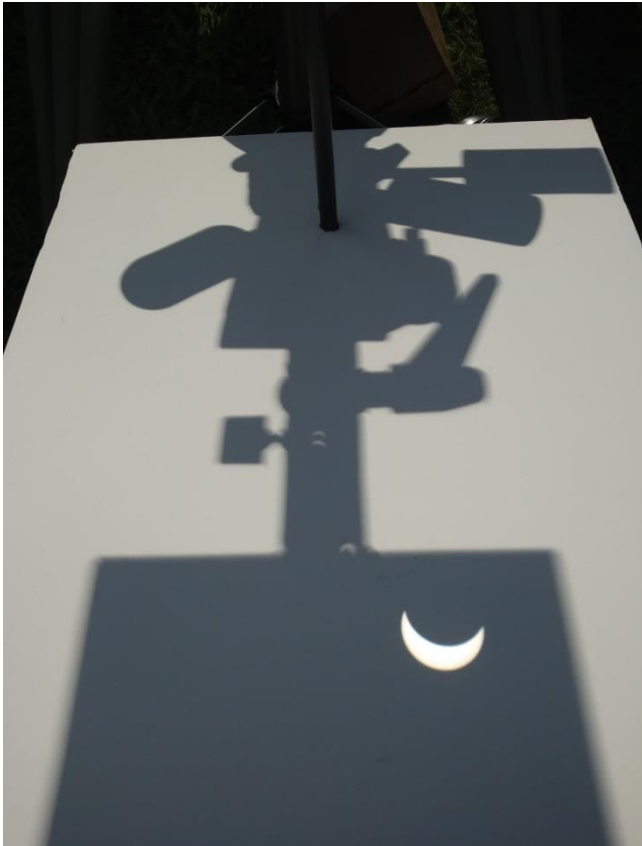
wo66 moon crossing sunspot

reflection of sun off balding head - b-in-law



Kevin Parrington (partial, Harrison, NY)

The Harrison Library asked WAA to do an outreach event for the eclipse. Claudia got a new job and had to go out of town for training, so I ran the event. I had Claudia's Celestron SLT 90mm telescope with a solar filter. I also made 25 pinhole projectors, 4"x4"x4'. They were very popular. A boy in red shorts and his mom had a small telescope and asked me if it would be worth setting up the scope. They asked if I would be able to help because they had never set up a scope before. It was solar telescope with an internal solar filter and with my help the young fellow was able to use it as part of the eclipse party. Another WAA member projected the sun through a small telescope. That was another hit. I am sure that they were club members but in the excitement I didn't catch their names. Initially there were over a 100 people there but it seemed that a good portion of them were there only to get the glasses (donated by WAA) and leave. Nevertheless it was a good event and a good turnout.



Olivier Prache (total, Charleston, SC)

My wife and I have friends who retired 15 years ago near Charleston, where we had never been. This is what made our eclipse site selection very straightforward: visit with friends, see a new area and, weather permitting, watch totality. As a result, I never bothered checking the weather forecast. It turns out we were lucky on all three fronts!

We flew Saturday to Charlotte and drove from there to Mount Pleasant, across the river from Charleston, where our friends' house is. We spent Sunday touring Charleston and ended up taking a sunset cruise to an uninhabited island for a sunset picnic.

On Monday, we drove an hour north to a small park on the shores of Lake Marion, an artificial lake built with a dam at the end. Our friends had invited many of their friends and set up a full-fledged picnic event. The park was located right on the maximum totality path. It was a fabulous setting with water nearby and trees around, a real blessing given the high temperature and humidity!

There were some clouds moving up but overall it was clear.

I had brought an Orion Short-tube 80 mm telescope with a front solar filter intending on taking pictures. But everyone wanted to look, including other folks who had come to the park. So that's how it went with people looking at the sun spots and trying to take images with their cell phones, some of which came out nicely. There were large sun spots, which provided interest and most people were quite impressed (all said thanks, which was nice).

I saw a fellow who had punched a hole through a piece of paper and was showing others what a pin hole camera does. There were a few people with photo gear and small scopes, but not that many, maybe 5 to 8. Overall, the park (a small park in a rural area) had maybe 100 people. Certainly not over-crowded.

I had brought solar glasses and our friend had some also so everyone was set up. One even brought a welder's helmet (see photo)

As the moon ate into the sun, the brightness started to go down and one could see the small arcs at the end of the shadow of the small leaves from the trees.

And then it happened and when totality hit, it was wild. Everyone was clapping, shouting. The crickets started. The sun was black with a fiery ring. The shadows were all wrong as the light level was that of

dusk yet the shadows were short. You could see Venus high up in the sky. The temperature dropped. One could feel it. Likely it went from 95 down to the mid-80's. It was all of a sudden quite nice.

I removed the solar filter and took a quick peek (I should have peeked longer) and it was brilliant! Like in the pictures but real, a black disk with a flaming crown. I could see a bright star nearby (I found out later it was Regulus), and invited everyone to take a quick look. Lots of ooh's and aah's. Everyone was excited for the 2 minutes and 36 seconds of totality.

Then it ended, and then clouds started to move in. We got lucky and it was a blast. I heard that meanwhile it was raining in downtown Charleston so our friends' location planning worked out perfectly.



Mauri Rosenthal (total, Madras, OR)

Through college friends on the west coast, I had teamed up with Boyce-Astro, a San Diego based group that had the Madras, Oregon location for the Citizen CATE project, which enabled us to camp and set up right next to the Exploratorium group that provided the live telescope feed for NASA's broadcasts. The Citizen CATE project provided 60 teams across the country with identical equipment and guidance such that each site's two minutes of totality could be stitched together to form an extended movie, providing unprecedented data on the inner corona. Madras attracted a lot of attention because the historical weather patterns were as good as or better than any place else in the path of totality.

This was my first total eclipse and I dithered for months regarding what sort of imaging I'd try, given a consensus that it could be a mistake to spend 2 minutes of totality concentrating on equipment rather than looking up. In the end I decided to go for a wide shot rather than telephoto. My best decision was to tape a piece of Thousand Oaks filter to my 8X32 binoculars, so that I could easily flip it out of the way and replace it at the right time, and I was really pleased

that the filtered binos provided a clear view including the sunspot grouping during the partial phases – much better than what you could see with any of the 500 free pairs of eclipse glasses our group was giving away (we had a lot of public interaction on Sunday at our location).

Totality was a 3 ring circus! Half a dozen people literally jumped out from a plane just before contact 2 to parachute into the airstrip right behind me; and it was fun having the Exploratorium and NASA folks – many of whom had real work to do – whooping and hollering as the sun vanished. My best moment was when I took a good look through my unfiltered binos and was astonished by how clearly I could see the red solar prominences between the black disc and the white corona. Having seen relatively faint views of prominences from topnotch solar equipment on a few occasions, I couldn't believe what I was seeing through my safari binos. When you view well-made telescopic eclipse images and suspect that the red jets of flame are so prominent they can't be real, those are the best approximation of what I saw for those few seconds.

My three images are:

1. A telephoto shot of Mt. Jefferson from our campsite next to the municipal airport. The day before the eclipse, the mountain was invisible through the smoky haze exacerbated by active forest fires. But on eclipse morning, the sun rose directly opposite the mountain and lit it well enough that we could see that the weather was going to be perfect.
2. A zoomed in image, still too low a focal length to resolve any prominences but it does show some red at the edges of the disk. Both of this and the last photo show two things that totality observers saw that I didn't fully expect: First, the sky color is not black, but a twilight blue. It's a stretch to say that it was dark enough for the stars to come out – Regulus at magnitude 1.3 was visible near the sun, and a very bright Venus was high in the sky. I have not heard of any other stars noted visually by viewers across the country. Second, the broad shape of the corona with 3 pointy lobes – vaguely resembling a wolf's head with two pointy ears and a snout – can be seen in photos taken from coast to coast. I had just assumed that corona images I'd seen before were like sun flare in telephoto lenses – an artifact which varies from lens to lens. Nope, the corona is a real thing with a real shape which certainly did not change materially during the shadow's cross country journey.

3. A wide angle totality shot showing fellow observers in the foreground, and the peculiar “hole punched in the sky” appearance of the eclipse.

I'm glad I made the trip and also enjoyed the reunion with old friends, many of whom I hadn't seen since the seventies. My wife and I are starting to plan to travel to Chile for the next eclipse and I hope it works out as well for good viewing conditions as we had in Oregon.





Karen Seiter (total, Jackson, WY)

In May of 2012, my husband George and I traveled to New Mexico to see an annular solar eclipse. It was certainly a great trip. However, as so many have said, that last 1% of sun light makes 100% of the difference. So when we learned about the first total solar eclipse that would be visible in the continental US for more than 38 years (“The Murican Eclipse” as Neil DeGrasse Tyson said) we knew we had to go. We opted for a trip with TravelQuest International, tour operators who specialize in eclipse travel, largely because we had traveled to Iceland with them years ago to see the aurora borealis and had had a great time with them. The itinerary was round trip from Salt Lake City, with stops in Idaho, Yellowstone, the Teton Valley, Jackson Hole (for eclipse day) and Park City Utah. In addition to the TravelQuest people we had the expertise of veteran eclipse meteorologist Jay Anderson, as well as Astronomy magazine editor David Eicher. I wanted to be sure we saw this eclipse and

decided to leave the planning to the experts rather than risking it myself.

Our trip began in Salt Lake City. Here we experienced a pervasive, but subtle indoctrination by Mormons. On the plane ride home I found myself reading the Book of Mormon they had given me when we toured Temple Square. A visit to the Great Salt Lake was interesting until the ever present sandflies decided to see what displaced New Yorkers taste like. We then spent some time making stops in Idaho, including a trip to the National Oregon/California trail center where I was thankful that I was born in the 20th century. At least the covered wagon simulator seemed to slip my herniated disc back into place. Further on we made stops at scenic locations including Bear Lake.

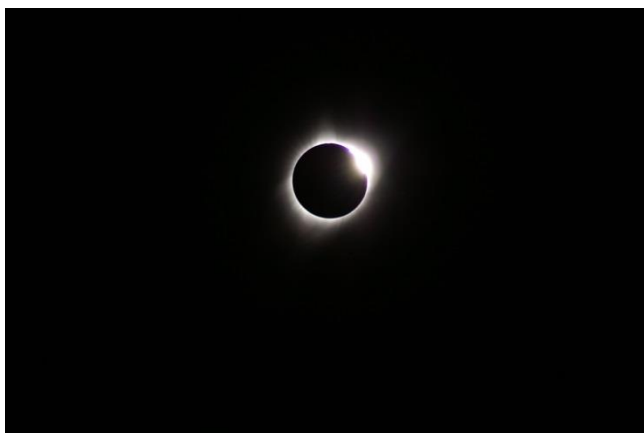
Next it was on to Jackson Hole. We had a western style dinner and concert at a ranch (definitely not the Metropolitan Opera). We then spent time enjoying the idyllic scenery of Grand Teton National Park and finally my second most favorite part of the trip, Yellowstone. The one thing I learned is that you can’t rush a trip to one of the largest supervolcanoes in the world, and I definitely plan to return. I love geology, and especially volcanoes, so I was giddy standing on top of this monster waiting for it to blow.

Finally it was eclipse day. There were 59 people in our group. TravelQuest had several other eclipse tours in the area and we all (approximately 200 people) converged on the Teton Science School in Jackson Hole for the eclipse. The school was very accommodating with plenty of chairs and food for all plus an endless supply of mylar for those who did not bring enough solar filters for their cameras. Many of the other eclipsers had experienced totality before, with some having been to as many as 15 prior total solar eclipses. We befriended several who had already been to Easter Island, the Libyan Desert, Antarctica and the high Arctic. Many were discussing the plans they had already made for the Chile 2019 eclipse. There were two schools of observers: those with every imaginable imager (the gadget people) and those that believed in just sitting back and taking it in without technology (the spiritual people). We were somewhere in the middle.

As scientific as the group was it was interesting that the reaction to the sun’s disappearance was one of apprehension. Many moaned like zombies. When it was totally dark, most people sat quietly, not unlike the cows that went to sleep at another eclipse site. When Bailey’s Beads appeared people perked up and

when the diamond ring blazed upon return of the sun there was a collective roar. "We are saved!" It was amazing how quickly people packed up after totality was over ("Wait it's not over yet!"); but the big show was done, and we had beaten the evil weather monster that was poised to ruin our day.

After the eclipse we finished our tour--investigating the infinite varieties of tee shirts sold in Jackson Hole, and then watching Olympic hopefuls practice on ski jumps at the Olympic Park in Park City, Utah. It was then back to reality: the flight back to JFK, the cars clamoring for a spot at the passenger pick up, and the wall-to-wall traffic on the Van Wyck. Some things never change.



Jim Steck (total, McClellanville, SC)

A few months ago I decided to visit my sister in Wilmington, North Carolina and see the total eclipse as well. As I checked the eclipse maps it showed that totality began a bit south of Myrtle Beach with the center of totality passing through McClellanville, SC.

As I zoomed in on the map I found out that the center of totality passed right through the parking lot of St. James-Santee Elementary School on US-17 in McClellanville. The duration of totality there would be 2 minutes and 34 seconds and it looked like a great place to view totality.

On the morning of the eclipse I left for the school at 9 AM for the expected 2½-hour trip to get there before the partial phase starts at 1:17 PM. It was bumper-to-bumper all the way from North Myrtle Beach through Georgetown, when the traffic cleared and all of a sudden we were going 70 mph the rest of the way with the whole trip taking about 5 hours.

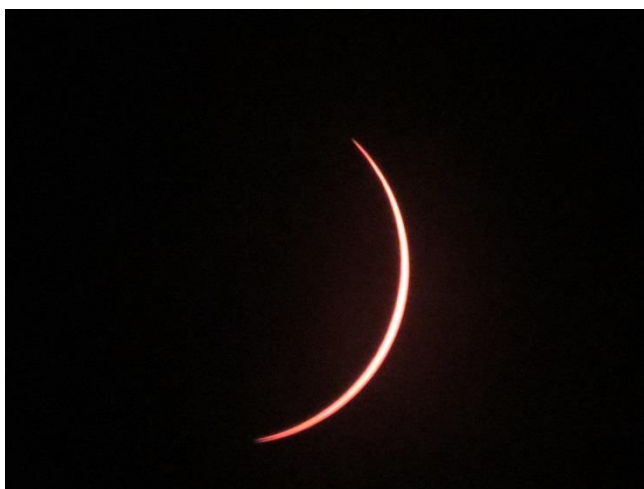
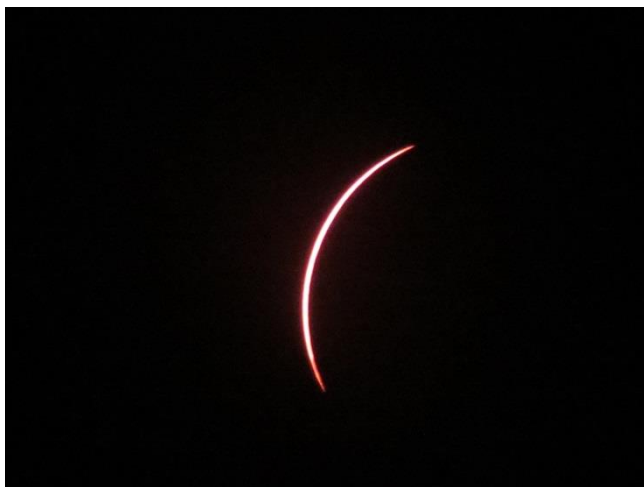
As I approached the school cars were lined up on both sides of the road with people watching the beginning of the partial phase. I quickly took my camera and tripod over to the school to join the crowd of about 100 other viewers. I set up next to an astronomer from New Jersey. I observed the partial phase and started taking pictures shortly before totality began at 2:46 PM.

At the moment of totality a big cheer erupted from the crowd. It was spectacular even as thin clouds passed by. During the eclipse the lighting was like at dusk, but not nearly as dark as I thought it would be.

Around 3:30 PM a police car showed up asking that everyone clean up when they leave since school would begin the next day. Almost everyone had left before the partial phase ended at 4:10 pm.

My trip back to Wilmington also took about 5 hours.

It was a great experience and I plan to travel to see the next one in seven years.



Robin Stuart (total, Fredonia, KY)

I had studied the cloud cover statistics along the eclipse path and from past successes and disappointments had learned the importance of being mobile. Yes, flying to Salt Lake City and driving from there was a possibility that offered some of the best weather

prospects but statistics make no guarantees for the day itself. What I could be certain of though was a shorter duration for totality than in the Midwest and limitations on the equipment I could take with me.

I determined that St. Louis, Missouri, 1,000 miles away, could be comfortably reached in 2 days' driving. If I arrived there on the Friday before I could monitor the weather situation and would have a potential range of another 1,000 miles east or west along the path to find clear skies. After crossing the Mississippi around 6 pm on Friday, a study of the weather forecast indicated the local situation and that to the east looked quite favorable but things were a good deal worse to the west. The small town of St. Clair, Missouri was right on the centerline and within easy reach from St. Louis so I spent Saturday sightseeing. Early Sunday morning the local weather still looked passable but western Kentucky seemed marginally better. So, having snagged the last room available at Days Inn in Madisonville, Kentucky at 6 times the normal rate, I headed east along I-64, which kept me well clear of Carbondale, Illinois, the nominal center of the eclipse, which I assumed would be completely snarled.

As Madisonville did lie in the path of totality I was assured of seeing something but was far enough from the centerline that totality, or as it was colloquially referred to, "the time when you can take your glasses off" would only last 1 minute 48 seconds. My plan now was to drive to the small town of Fredonia which could be reached along KY route 70, avoiding the freeways and traffic nightmare that the local authorities anticipated before the eclipse.

Having scouted the area the evening before, I had decided that J. D. Bugg Road off KY route 641 was the spot. On my arrival a BMW SUV was already in place. One of the gentlemen inside was a resident of St. Louis and having come to the same conclusion as I had on the local weather prospects had driven through the night to get there. By the start of the eclipse there were 14 vehicles parked along the road and my plan for solitary eclipse viewing was transformed into an exercise in social interaction with an interesting cross-section of humanity. The local farmer, a kindly fellow who had earlier been offering water to anyone who needed it, rolled up on his ATV 30 minutes before totality seeking instruction on the use of his Canon camera.

With about 15 minutes until 2nd contact and anticipation mounting, a small car drove up and parked near where I was stationed but on the opposite side of eve-

ryone else. A tall young man, hair in a ponytail, got out and after communing briefly with people along the road, jumped onto the roof of his car, hands raised in the air, calling “Gather round! Gather round! I want to tell you something about the eclipse.” Surprisingly, many people stopped what they were doing and obediently huddled around to politely hear him out. He proceeded to spin an argument that somehow seemed to hinge on the idea that the current eclipse and ongoing wars are unique occurrences in the history of the world that are unambiguously foretold in the book of Revelations which is all just totally miraculous and hence the end of days is upon us, QED. It annoyed me considerably that someone would usurp this special time and location to pull such a distracting stunt and I was especially disturbed when I heard him say that he “hoped to be done” before totality began. Mercifully he was.

To photograph the event I had my Televue Pronto on an iOptron equatorial mount with a Canon 60Da DSLR connected to a laptop. I wanted to watch and enjoy the eclipse and not be fiddling with a camera so had automated an exposure sequence using ImagesPlus Camera Control. This would give around 37 exposures during totality. There was a little bit of choreography to be performed around 2nd contact but I had mentally rehearsed it many times.

As the time approached it grew noticeably cooler. The shadows sharpened, the daylight took on an eerie tone and then it happened and it was wondrous! I kicked off the automated exposure sequence and while ImagesPlus beeped away I reveled in the rosy hues of the prominences and chromosphere, the delicate structure of the pearly white corona, the 360° twilight and the sight of Jupiter, Regulus, the Sun, Moon and Venus arrayed along the ecliptic. The diamond ring when it came was striking. Then all too soon it was over but what an awe inspiring experience it had been.

The traffic in the period before the eclipse was generally light and so staying outside of the path of totality and driving in on the day is a cheaper and viable strategy, which may be useful in 2024.

My automated sequence of exposures went off without a hitch and my initial forays into HDR processing seem to be producing satisfactory results.

A total eclipse is well worth the effort.



Harry Vanderslice (partial, Westchester, NY)

These photos were taken with a Nikon Coolpix L120 (a point and shoot camera @\$249). The brighter two photos were taken through a homemade filter, holding it in front of the camera lens with my left hand. The two darker photos were taken while I held a pair of the solar eclipse glasses in front of the lens. It worked and I got the results I wanted. The Nikon Coolpix L120 camera I have is not made for filters to be attached.

Although the magnitude of the partial eclipse in our lower Westchester area was 70%, the afternoon daylight was not noticeably darker. You would not be aware there was an eclipse from any dimming of the afternoon daylight.



Mike Virsinger (total, Alto Pass, IL)

The location I selected for the eclipse was the site of the Bald Knob Cross in Alto Pass, Illinois. This location was chosen because it met several key criteria:

- Be as close as possible to a location that provided at least 2' 30" of totality;
- Be within a 2-day drive as I had too much equipment to make flying practical;
- Have a better than 50% chance for clear skies;
- Have a clear east-west travel options in case I needed to quickly re-locate due to clouds;
- Be away from major cities to reduce the potential for traffic and large crowds.

The site was perfect: it had dedicated areas reserved for astronomers with photographic equipment and due to it being on the crest of a 1,100-foot hill it provided stunning 360 degree views of the surrounding area.

The weather cooperated and while a random cloud threatened, it only obscured the sun for about 20 sec-

onds during totality before it dissipated. After looking at the pictures the clouds added some extra drama to the 3rd contact diamond ring photos.

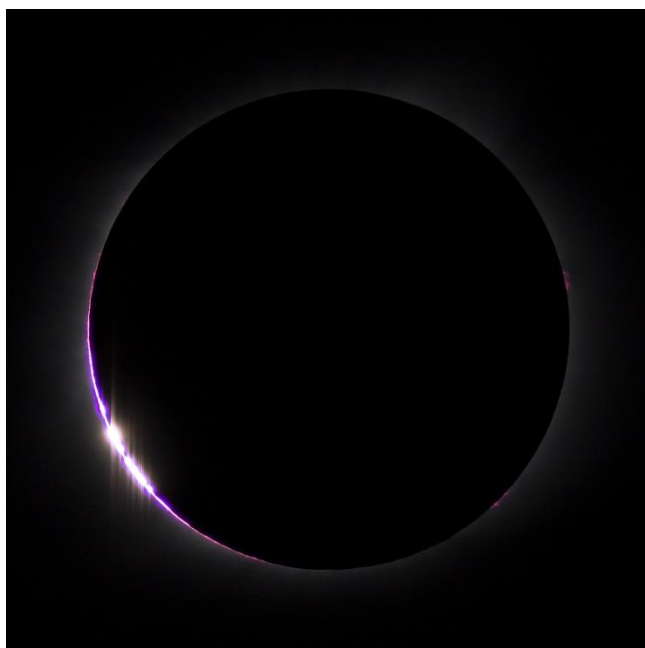
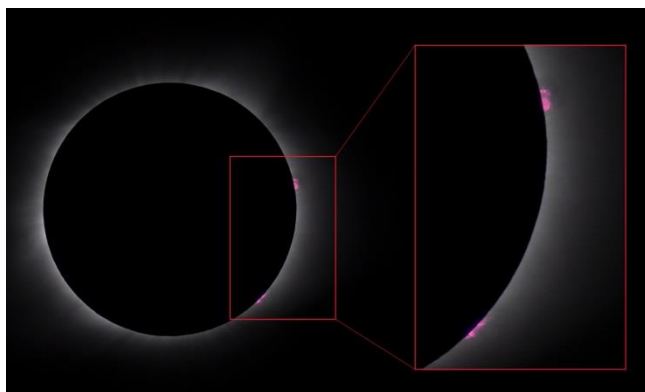
The photographic equipment I used consisted of a Celestron Onyx 80EDF refractor on a Universal Astronomics MacroStar Alt-Az head mounted on their heavy duty tripod. At prime focus was an Olympus OM-D E-M5 mirror-less camera. I also had a GoPro Hero5 Black set up on a tripod to record a time lapse video of the event in 4K.

For visual use I brought a pair of Oberwerk 11x56 binoculars on a pistol grip monopod protected by Asstromania Deluxe solar filters. These were film type and I suspect they used Baader given the way they rendered the sun in that cool pale hue with excellent resolution. Rounding out the equipment list was the standard box of tools and spare parts, 2 folding chairs, a folding table, a sun shade and a small cooler (you can see why flying was out of the question). Packing the trunk became a test of skill but I managed to find a way to fit it all in securely.

In the weeks and days before the event I did several practice runs setting up the equipment and taking pictures of the sun and moon to make sure I had the right image scale and exposure times for the partial phases. I also set multiple alarms on my iPhone which let me know precisely when each contact event was about to happen so I did not have to worry about event timing. Practice paid off and even though things never quite go as planned, I was able to successfully record the event and still have time to enjoy it visually.

As for the images - the Celestron Onyx I used is an 80mm refractor with a 500mm focal length @ f/5.6. It has been an excellent performer for me producing very nice images from the transits of Venus and Mercury to lunar eclipses and one of the last space shuttle launches. Because the Olympus camera is a micro four-thirds design, it has a crop factor (focal length multiplier) of about 2 which effectively doubles the focal length to 1000mm. This made for a large image scale which was perfect for capturing the detail in the prominences while still providing enough room in the frame to capture a good part of the corona. For all of the images I used an ISO of 200 and varied the shutter speed to alter the exposures. For the prominence detail and the Baily's Beads at 3rd contact imaged I used a 1/4000 sec shutter. The corona image consisted of 9 shots with shutter speeds of 1/15, 1/25, 1/50, 1/200, 1/1000, 1/500, 1/1250 & 1/4000 sec. I manually aligned and merged them in Photoshop CC and ap-

plied only minor adjustments sharpening to the overall images.



Jordan Webber(total, Liberty, SC)

I'd like to start by thanking Paul Alimena for his outstanding presentation on solar eclipses at the Harrison Library in July. Paul's presentation inspired me to purchase eclipse glasses ahead of time, which ended up being critical as supplies were exhausted weeks before the eclipse. Fortunately, by then I had mine, and my friends and I were able to fully enjoy the eclipse with them.

My eclipse experience started the morning of Sunday August 20th, when my friends came to pick me up at 8:00 AM for the journey down to Greenville, SC. We took a detour through Shenandoah National Park and drove for a couple of hours along the scenic and very beautiful Skyline Drive. Traffic overall was lighter than I had expected; however, our detour cost us some time and we finally arrived in Greenville at approximately 2:00AM on Monday 8/21. We woke up at 8:00AM on the 21st and consulted the weather forecast. It did not look promising, so we commenced searching for alternate sites, settling finally on Clemson, SC. After a brief coffee stop, we were on the road to Clemson.

Once in Clemson, we drove around for a little while to decide on a location from which to observe. We picked the beautiful South Carolina Botanical Garden. There was ample parking when we arrived around 10 AM. We set up lawn chairs and relaxed in the relatively cool shade before setting up my friend's 70mm refractor and camera. I had decided not to do any photography of the eclipse myself, in order to be able to simply enjoy it. We watched with amazement as the moon began to appear in front of the sun. But then, when the eclipse was at around 10%, our elation turned to mild panic as a seemingly endless mass of clouds rolled in and blocked out the sun. Faced with the decision to stay where we were or break down and hunt for a new spot, we decided that it would be better to chase the blue sky in the car, since seeing the eclipse and not capturing it would be better than not seeing it at all. So we tore off headed south-east until we arrived at the border of Liberty, SC at 20 mins prior to totality. The skies in this spot were perfect, so we scrambled to get everything set up again and were able to do so in time for totality. We made sure to take a look at our shadows on the ground and we noticed an unusual sharpness to them. As a big guy who breaks into sweat at the mere **thought** of going out in the sun, I enjoyed the brief moment while the sun

still lit the world but its intensity had decreased dramatically. It felt like a cloudy day with no clouds.

Totality itself was indescribably amazing. The best analogy I could think of was that it looked like a hole punched in the sky. We could easily see Venus, and we stood there awestruck as the seconds ticked by, finally being blown away by the "diamond ring" effect as totality came to an end.

We packed up our gear again, went back to our hotel for a little break, and spent the rest of the day in downtown Greenville, where we enjoyed a stroll along the Liberty Bridge in the astonishing Falls Park before tucking into some delicious southern barbecue. Full and exhausted, we then called it a day.

Our ride home on Tuesday concluded following an incredible thunderstorm through Pennsylvania. I am confident that I saw more lightning bolts while driving behind that storm than I have in all of the other storms I've seen put together! We could even watch as some of the bolts branched their way out through the clouds, seemingly in slow-motion. An incredible show of nature eclipsed only by, well, the eclipse itself!

The trip was short, but very memorable indeed. I look forward to the next eclipse when my children will be old enough to appreciate and enjoy it. As I mentioned, I did not take any photos of the eclipse itself, but I did take a few photos in Shenandoah National Park, which I'm happy to share.



Planning for another total eclipse?

The next total 5 solar eclipses will take place in central Chile on July 2, 2019, in Argentina on December 14, 2020, in northern Canada, the Arctic Ocean and Siberia on June 10, 2021, near western Australia, Timor and New Guinea on April 20, 2023, and on April 8, 2024 in Mexico and across the US from eastern Texas to western New York.

Useful web sites

Xavier Jubier's eclipse information http://xjubier.free.fr/en/site_pages/SolarEclipsesGoogleMaps.html

Xavier Jubier's interactive Google Maps: http://xjubier.free.fr/en/site_pages/SolarEclipsesGoogleMaps.html

NASA Solar Eclipse page: <https://eclipse.gsfc.nasa.gov/solar.html>

Books that might interest you:

Mark Littmann & Fred Espinak, Totality: The Great American Eclipses of 2017 and 2024 (2017)

Tyler Nordgren: Sun Moon Earth: The History of Solar Eclipses from Omens of Doom to Einstein and Exoplanets (2016)

Richard Cohen: Chasing the Sun: The Epic Story of the Star That Gives Us Life (2010)

The Great American Eclipse of 2017, a change of tune...

Eva Andersen

For my husband and I like so many others, this was our first total solar eclipse and I engaged in all manner of research to prepare for this rare event. Aside from the absolute necessities (my go-to: "Get Ready for E-Day" by Michael E. Bakich, *Astronomy magazine*, August 2017, which included a list of 25 essentials to bring to the eclipse plus loads of helpful hints) an additional area I kept seeing referenced was the music that individuals or groups planned to use during the nearly 3 hours between 1st and 4th contact. This sounded interesting and fitting given the large number of events being planned and the huge crowds expected for days of Eclipse-mania all across the USA. A solar eclipse would draw people of all ages and levels of interest; there would be beginners and sharp amateurs and dogs and babies and visitors from overseas, and reporters and astronauts and politicians and geniuses... lots of groups posted their playlists and music is said to be "the universal language of mankind" (Henry Wadsworth Longfellow), so why not?

Initially I intended to seek out like-minded members who chose to incorporate music into their eclipse experience and chronicle the selections into a WAA playlist of sorts. My intent was to discover if music played a role for any of our members on E-Day and if so, perhaps a simple compare and contrast with other groups who posted their playlists. What genres? Would there be regional or generational differences? Nothing very intellectual here, just curious...

I received some interesting responses from club members but one in particular I didn't expect was both critical and an important part of the conversation I had inadvertently started when I asked for member feedback. This exacting member expressed sadness and surprise that there were some who would consider that experiencing the sublime majesty of a total solar eclipse would somehow be enhanced by adding canned music. This thorough reply ended by stating if the WAA was to lend its name to this survey then it would need to be accompanied by a disclaimer making it clear that playing recorded music in nature when it can be heard by others is intrusive, inconsiderate and unacceptable behavior. There was a concern that members might someday have to look forward to having their star parties accompanied by the spiritually uplifting strains of loud gangsta' rap and a heavy beat note. FYI: per the newsletter and website: WAA al-

lows music at star parties: "music is permitted but should be kept at low levels, not everyone enjoys the same music." I have attended many star parties through the years and have not yet experienced loud, obtrusive behavior such as recorded music. In my experience the people who come to star parties are considerate and respectful. But, I get it.

I hold the WAA in very high regard and would never intentionally tarnish its reputation by suggesting behaviors that would lower the standards of our fine club or by ruining star parties or other viewing opportunities for members and the public. My intention was simply to learn if others favored music during the eclipse and if so what did they listen to? Never was there a plan to impose my survey results on our star party crowd by blasting my ipod loud enough to make the coyotes howl in the Meadow parking area. There are times when I too expect and need quiet.

Moving forward, just a few casual reflections on August 21, 2017.

Music is a personal choice. There are those of us who supplemented this date with compositions that bolstered the emotions we felt or supported the physical changes we observed. Some songs actually depicted an eclipse while others were just topical tunes that had the word "sun" or "moon" or "eclipse" somewhere in the lyrics. Yet some songs were eerily complimentary to the sudden drop in temperature, darkness and stillness that just . . . happens. One individual shared with me the plot of Alexander Borodin's opera "Prince Igor" composed in the late 1800's which features an actual eclipse in the first act, which terrifies the Prince's Army until 3rd contact when they all rejoice with full orchestra and chorus!

During the eclipse our hosts played some of the other classics during first contact: Cat Stevens: Moon Dance and the Beatles: Here comes the Sun. Another couple we know watched the beginning of the eclipse to "2001: A Space Odyssey", the partial phase: Fly me to the Moon" and as the eclipse ended "Spirit in the Sky"... all great choices.

Of the many playlists I found, the interns at NASA had the longest and most contemporary collection. I was not familiar with some of their songs but after having a listen, was impressed.

Eclipse Playlist by NASA Interns

- [Eclipse \(Lindsey Stirling\)](#)
- [Eclipse \(LOONA/Kim Lip\)](#)
- [Eclipse \(Pink Floyd\)](#)
- [Endless Night \(Original Broadway Cast of The Lion King\)](#)
- [Fly me to the Moon \(Frank Sinatra\)](#)
- [Galaxies \(Owl City\)](#)
- [Here Comes the Sun \(The Beatles\)](#)
- [Hometown \(Twenty One Pilots\)](#)
- [Let the Sunshine In \(Original Broadway Cast of Hair\)](#)
- [Little Star/Eclipse \(Sammy Hagar\)](#)
- [Northern Downpour \(Panic at the Disco\)](#)
- [The Sky and the Dawn and the Sun \(Celtic Woman\)](#)
- [A Sky Full of Stars \(Coldplay\)](#)
- [The Sound of Silence \(Simon and Garfunkel\)](#)
- [Sun Is Gonna Shine \(Carman Cusack\)](#)
- [Total Eclipse of the Heart \(Bonnie Tyler\)](#)
- [Touch the Sky \(Disney\)](#)
- [Under a Paper Moon \(All Time Low\)](#)
- [When the Day met the Night \(Panic at the Disco\)](#)
- [Why Does the Sun Shine? \(They Might be Giants\)](#)
- [You're So Vain \(Carly Simon\)](#)

Also on NASA's website:

Innovative Music and Sonification: One way to make eclipse music is to take the data from the eclipse and through the magic of software perform a procedure called 'sonification'. For the August 21, 2017 event, the Kronos String Quartet will accompany the sonification process and turn the entire eclipse into a spectacular sonic experience. ***They did, and it is very cool!** <https://youtu.be/baaMyorxbug>. (Editor's note, also try these related links: [1](#) and [2](#)).

To conclude, I played music throughout the entire eclipse. That we even got close to "the line" and actually witnessed totality was nothing short of a miracle. We could not make plans in advance due to ongoing family illnesses and work responsibilities. We had no plan. We found a window of opportunity, tossed camping equipment in the Subaru and raced out of our house headed for the Midwest. Bottom line, we made it. We ended up as guests in a double-wide trailer perched on a steep hillside in a dry county on Lake Malone, KY with 4 adults and 2 schnauzers whom we did not know prior to August 20th. Their plan was to watch the eclipse from the lake on a party barge while eating Moon Pies. I would have preferred the shore, but we were guests and the hospitality was so genuine we couldn't resist the offer.

Our friendly hosts were agreeable to music: they had the day off, were out on the water, packed great snacks and were sneaking Budweiser out of insulated travel mugs. We were very close to the center line. No clouds. It couldn't get any better. We cruised through 1st contact with Bad Moon Rising (Creedence Clearwater Revival), Chasing the Sun, Smooth (Santana), Steal My Sunshine (LEN), Monday, Monday (Mamas & Papas), What a Feeling (Drew Ryn). Just before totality: Ain't No Sunshine (Bill Withers) and Black Hole Sun (Soundgarden). During 3rd contact we tried to bring our heart rates down with: Here Comes the Sun (Beatles), Aquarius/Let the Sunshine In (the 5th Dimension), Brighter than the Sun (Alex G), Burn (Ellie Goulding), I Can See Clearly Now (Johnny Nash), Ring of Fire (Floyd Red Crow Westerman), A Sky Full of Stars (Coldplay) and You're So Vain (Carly Simon).

Music is personal. Totality: *Hello darkness my old friend... because a vision softly creeping... when my eyes were stabbed by the flash of a neon light, that split the night (these lyrics played at the instant of the second diamond ring).... and in the naked light I saw, ten thousand people maybe more... and the vision that was planted in my brain, still remains...* Even if I am destined to end my days on earth like my father, confined to the limitations of Alzheimer's Dementia I know I will never hear Simon and Garfunkel's "The Sounds of Silence" without reliving the totality of August 21, 2017.

