

Viewing Great, Timing Difficult



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A Recap of the Transit of Venus on June 5, 2012

I've never surfed a big ocean wave before, but I imagine it's something like the transit of Venus. You prepare, you see it coming, you paddle frantically to catch the right spot. Then, for a fleeting moment you stand up, ride a mass of towering energy, delight in a surreal moment in a tunnel, then feel the watery bulk flow underneath you as you emerge on the wave's backside, thankfully intact. For the last couple of weeks I've been floating on the backside of that transit of Venus wave, and it's been quietly exhilarating.

Eight years of anticipation peaked with a gorgeous June 5 in northern Indiana. The day got underway early with site preparations, as a tent was raised and brought to life with electricity, cable, internet, and sound. Of course, the phone was ringing as last minute seekers of solar shades and interviews dialed in to the day's events. There was nothing left to do with the website, as that ship had set sail. I reset the Countdown Clock for the 2117 transit of Venus, some 38,000+ days in the future, and walked away from the computer. Our Transit of Venus (TROVE) celebration was underway.



Shortly after noon a group of descendants of Irvin Stanley arrived, having come from Michigan, Indiana, Illinois, and California. Irvin Stanley was the Assistant Photographer for the US Naval Observatory (USNO) expeditions to Kerguelen Island (1874) and Patagonia (1882), and USNO Librarian Sally Bosken had generously provided many artifacts from the expedition archives. A highlight of the transit of Venus experience has been learning about and following this one person, Irvin Stanley, through the travails of exploration in a previous century. Now his family was touring regional transit of Venus highlights, with more than just the celestial sight on tap.

First up was an exhibit of transit of Venus art by high school students. Then I presented a talk centered on Irvin Stanley and the greater quest to find the Astronomical Unit from timed observations and photographs of the event from widely separated (hence, remote) locations. I wish I had had more time to peruse the family photo album that someone brought, but the family was ushered onto the motor coach and was off to the next stop—the Harris Branch Library, site of a transit of Venus display of artifacts and an art exhibit in pastel.

June 5 was the last day of school for the Penn-Harris-Madison (PHM) school district, and Art Klinger's astronomy class students began setting up telescopes and viewing devices in the field near the tent. Over an hour before first contact, spectators were showing up as we secured solar filters to telescopes with bright orange duct tape. I gave one last frenzied lecture in the theater before returning to the scopes outside. A bustle of activity ensued until suddenly hundreds of people had gathered and there was talk of the transit beginning imminently. Scott Potosky quieted the music and piped in a WWV time signal for anyone at a scope who wanted to capture the moments of contact by that audible method. Everybody had taken their first look at the sun with solar

shades, which in itself yielded a lot of oohs and ahhs, before Venus even took the stage.



Venus entered near the one o'clock position on the sun, the planet not easily discernible to the naked eye as it worked its way across the limb. People waited patiently in lines to view through telescopes, a sight complemented by two significant bands of sunspot groups. I occasionally glanced in a telescope, but was strangely removed as I emceed the event for a growing audience. As second contact approached, I cut to the front of a line and planted myself. I felt like

the narrator in Oliver Wendell Holmes, Sr.'s, *The Flaneur*. There I was, face to face with Venus, having a conversation with her at internal contact.

My overriding impression of the moment was, "Damn, determining the time of contact is not easy." I tried to imagine all of our predecessors trying to discern an exact moment when they felt convinced Venus was edge-to-edge with the sun. I understand Crabtree not recording the transit in writing. I understand Rittenhouse becoming overcome with emotion. I understand Cook's time not being in synch with his shipmates' times. I understand the expedition preparations that insist on total concentration and absence of distractions leading up to the transit, conditions that

were lacking at the public event.

While the sight through a telescope was enthralling, I experienced an undeniable uncertainty and lack of confidence in my timing. Despite my familiarity with what to expect and my having witnessed the 2004 transit of Venus, I could easily have been off by 30 seconds. The sun was at about 30 degrees of altitude with no clouds obstructing the view, but Venus seemed to linger on the solar edge. I looked for the planet to separate clearly from the sun, but when that didn't happen I tried to see if the horns of the sun had reconnected. Was that a minimalistic black drop effect I witnessed that suspended time? How did so many of those earlier explorers seemingly fare better? I wasn't at the eyepiece long enough to look for other phenomena, like the aureole effect.



Four monitors in the tent showed other perspectives. Feeds were coming in from NASA's webcast in Hawaii, news channels, and websites like Steven van Roode's transitofvenus.nl and my own transitofvenus.org. David Wyatt tracked Venus through a video camera that was hooked into a telescope and broadcast on a monitor. Another person projected a vast image of the transit onto a screen. Some people saw the transit through white light filters and a hydrogen-alpha telescope provided by AstroCamp of YMCA Camp Eberhart in Three Rivers, MI. Of course, a couple of telescopes were equipped with Sun Funnels, which yielded a projected image of the sunspots and of Venus in silhouette.



A few clouds moved in, thankfully after first and second contact, so during breaks in the action I demonstrated with a paper plate why transits come in 8-year pairs separated by over a century. I solicited and answered questions, pleased by the inquiries while realizing what I had previously left unsaid while narrating the event. The best memories are from the quiet moments when I shut up.



For example, after one extended cloud was ready to give the sun back to us, everyone realized when the sun was about to emerge from the well defined edge. I watched the crowd as they lifted their heads in unison and donned solar shades just as the sun brightened their faces.

During the whole event, a few local businesses that were supportive of science hawked their wares. Victorian Pantry served its Black Drop Effect Coffee, a smooth dark roast that was packaged with a design borrowed from the stained glass windows of St. Michael's Church in Hoole, England. Pizza Transit (yes, its pre-existing name) had both a Transit of Venus pizza and a Black Drop Effect pizza for sale. Taylor Design sold commemorative t-shirts, one of which has Worlds on Tour printed on the backside with the dates of past and future transits of Venus. Rock on.

People had been coming and going from the PHM site for the duration of the transit, and I joined the early departures. My heart was set on watching the transit underway at sunset from Warren Dunes State Park in Sawyer, Michigan, overlooking Lake Michigan. I had to see the Nitzschke-like view, what I consider an iconic transit image.

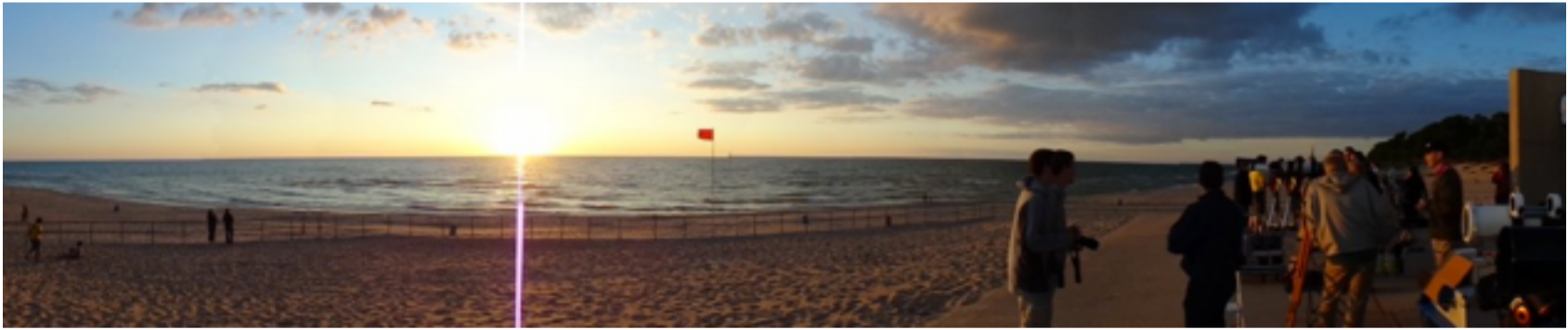


While I was driving to that lakeside destination, I realized other local observing sites with telescopes were drawing large crowds—New Carlisle Public Library (160 people), Andrews University (500 people), LaSalle Intermediate Academy (400 people), University of Notre Dame (~2,000 people). Each was staffed by dedicated transit of Venus enthusiasts.



We had distributed about 6,000 pairs of solar shades to people ranging from church pastors to juveniles at the detention center, so hopefully the shades were pressed into service. Venus was readily apparent naked eye to most people when it got away from the edge of the sun, albeit just a small dot on the sun.

As we arrived at Warren Dunes, a chilly breeze kept a red warning flag blowing stiffly. The Kalamazoo Astronomical Society had stationed itself on a large concrete pad overlooking the beach and lake, with a fabulous assortment of telescopes and observing devices, from grand to humble. Over a thousand people had gotten a glimpse of the transit through their gear that day, and sunset was approaching. I can't emphasize enough how beautiful the sunset was, with only the slightest of wispy clouds near the horizon that added character to the spectacle rather than obscured it. Seen in filtered telescopes, Venus contorted into a variety of shapes as her blackness or absence of light flickered through the thickest atmosphere.



The time came to abandon telescopes and solar shades. With the orange-ish sun plunging into the water, Venus was visible to the naked eye. I saw Venus at times appear to be nearly square, like four pixels on a monitor, and then it would momentarily disappear completely before re-emerging as an obvious spot on the sun. At one point the black blemish was above and right of a thin cloud line across the sun; soon it was below the thin line. Eventually Venus was gone, set below the horizon. The spectators watched the remainder of the sunset and cheered, sending well wishes to Venus for the next 105.5 years.

From there a modest crowd and the bus tour went to The Livery microbrewery in Benton Harbor, MI, where musician Venitia Sekema was performing an excellent musical set. We propped up the Transit of Venus Time Keg for people to write any last comments to denizens of the 22nd century. Shortly after 11:00 p.m. EDT we broadcast live via Slooh, showing some more transit of Venus art on display at the microbrewery. And, of course, we quaffed some Venusian ale, which had been crafted specifically for the celestial phenomenon. To see the half hour of our live broadcast, watch from about 0:52 to 1:23 of the Slooh Space Camera Transit of Venus Part 3.

Shortly before midnight, everybody inside the pub went out to the back patio and watched the International Space Station pass nearly overhead at magnitude -3.3. Onboard the ISS, astronaut Don Pettit would have been between the second and third contacts, though we were in the dark below. Again we cheered, wishing Don well in his photographing of the transit from the ISS cupola.

Everyone was clearly getting tired from a long day. While I had intended to seal the Time Keg for its long storage, we opted not to do so that evening. I figured there may be a couple of items to add before we hastily closed the lid for good. If you have any contents that you wish to include, email me (timekeg@transitofvenus.orgtimekeg@transitofvenus.org) to see if there is room and time. I'd like to wrap it up soon.

The week after the transit of Venus has been a time to decompress and re-connect with family and friends. From my perspective, much more has passed by than just 6+ hours of Venus on the sun. It's been a long, fun ride, and I'm grateful to many people for their respective roles in this adventure. There is still much more to do, of course, but on a different level of urgency. Thanks for being a part of the 20th century transit of Venus experience, especially to everyone who contributed to the outreach effort.

What a sight. What a day. Surf was definitely up.

