



Moved by a Rapid Transit

By Chuck Bueter

Presented at the
[Inspiration of Astronomical Phenomena](#)
 (INSAP V) Conference

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ABSTRACT: *The transit of Venus has captured the imagination of a small cadre of artists, musicians, and writers since the apparition was first recorded in 1639. The June 8, 2004, transit of Venus moved young and old alike to embrace the transit of Venus anew. A Great Lakes art exhibit attracted artisans and observers who anticipated a fleeting glimpse of the sunrise event, with new works sharing a common bond with earlier creations. Eighteenth century celestial charts were juxtaposed with satellite images; new children's drawings complemented stained glass monuments. From a John Philip Sousa march to a sailor's ditty, music added another dimension to the sight that had not been witnessed by any human then alive. As measured by a 21st century medium, the transit of Venus was deemed The Most Popular Event of June 2004 by Google, hinting at the modern appeal of a seemingly obscure astronomical alignment.*

Enticing by virtue of its predictability, utility, and spectacle, the transit of Venus is a niche event among astronomical phenomena.



Six recorded transits of Venus have been waypoints on history's timeline ever since young Jeremiah Horrocks' brilliant effort in 1639 to quantify its apparent size. Though the value of a transit for scientific purposes has diminished, the brief appearance of Venus silhouetted against the sun moved the artistic community to celebrate the rare alignment.



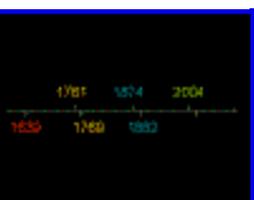
Artists of all ages combined old traditions with fresh technology to create a 21st century tapestry of songs, sculpture, paintings, glasswork, quilts, sky shows, and digital imagery. The pre-transit artwork had a significant role in generating enthusiastic observers, who in turn produced a new crop of artistic output.

A catalog of transit-related art generated over the years would feature the entries that I'd now like to show you in this talk. Beginning with the 18th century...



In his 1742 *Atlas Coelestis*, Johann Doppelmayr anticipated the transit to come three decades later, in 1761. Among the insets [on a page featuring retrograde motion of the inferior planets] is this beautiful drawing of Venus passing between the sun and earth. The stormy weather depicted below the earth is a reminder of the pitfalls that can confront the observer hoping to see the phenomenon.

In 1774, an anonymous composer memorialized the 1769 event in a song entitled *Come Ye Lads and Lasses with Speed: The Transit of Venus*, [now in the holdings of the British Public Library.]



When the nineteenth century pair of transits approached, English artists commemorated the great deeds of their local heroes. Early depictions of the transit honor the original 1639 observers Jeremiah Horrocks and his colleague William Crabtree. [Two

and a half centuries after their original triumph, recognition appears in enduring forms.]



Allan Chapman writes: "The greatest romanticization of Horrocks is to be found in Eyre Crowe's painting, in the Walker Art Gallery, Liverpool, which depicts him as an intense, emaciated Puritan, observing the 1639 transit of Venus with an elaborate equatorial telescopic apparatus."



Chapman continues, "William Crabtree fared no better at the hands of Ford Madox Brown, who painted the Salford merchant observing the same transit in one of the twelve historical murals that were commissioned to decorate the Great Hall of Manchester's new Town Hall in about 1880. Crabtree, who was a successful twenty-nine-year-old merchant in 1639, is depicted as a wild-eyed, skeletal septuagenarian observing with a brass telescope of late eighteenth-century design. He is accompanied by an appropriately pre-Raphaelite wife."



From the collection of the Astley Hall Museum and Art Gallery, is this subtle yet powerful painting of a confident Jeremiah Horrocks observing a projected image of the 1639 transit. Painted by J.W. Lavender in 1903, it was refurbished and put on exhibition for the 2004 transit.



Among my favorite works is a series of stained glass windows in the hometown church of our hero, Jeremiah Horrocks. The romanticized story suggests Horrocks may have been here, at St. Michael Church in Hoole, England, on the day of the 1639 transit, a Sunday. Religious duties of some sort prevented him from observing through a telescope during much of the day. Horrocks calmly prioritized religion and science by noting that he was called away ... by business of the highest importance which, for these ornamental pursuits [the transit], I could not with propriety neglect."



Such devotedness to faith endeared the young father of English astronomy to his fellow churchgoers. In a most conspicuous place behind the altar, a pair of roundels adorns the central panel of stained glass. The roundel above ...



refers to the report written by Horrocks, entitled *Venus in Sole Visa*, (or "Transit of Venus Over the Sun").



The roundel below depicts Horrocks projecting the sun onto a sheet (when in fact he projected it onto a 6-inch piece of paper). Here again, in a scene to be repeated to the modern day, the artists don't always have the science right-- artistic license trumps scientific accuracy. But the emotional impact of the art is undeniable, reinforced by the Latin banner, which translates into "Behold, a most agreeable spectacle." After having witnessed the 2004 transit myself, I concur fully with this humble assessment.

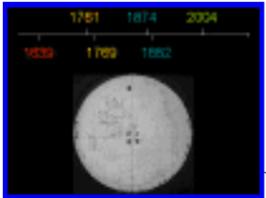


Keeping with the theme of places of reverence, the vault of another astronomical temple, the Paris Observatory, is adorned with this painting. Venus is seen between the earth and the sun, as an earthbound cherub witnesses the scene through a telescope.



A record of 18th century transit of Venus expeditions was captured in part by the official artists of the expedition, such as this illustration by Benard Direx. The portrait shows the portable observatory [that housed the new equipment—an accurate clock —] that allowed Captain James Cook to time the transit from Tahiti in 1761.

19th Century



When the 19th century pair of transits rolled around, the scientific community thought a new technique—photography—would capture the elusive moments when Venus just touched the edges of the sun. This leading scientific technology had a parallel application emerging within the artistic community—photographic art.



William Rau, who was with the transit of Venus expedition in Chatham Island near New Zealand, chronicled more than just the passing of Venus across the sun. The young photographer, shown here, recognized that the celestial event was potentially a triumphant moment in his generation’s history, and he carefully framed an artistic record.

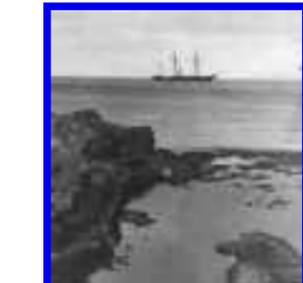
Consider, for artistic merit, these pictures by Rau and photographers from other expedition sites:



- The tasks of daily sustenance



- Perhaps this was an indigenous resident.



-  Seascape photography—afloat in the distance is the means to return home



- “Our Boy ‘Woods’”



- Local flavor—here, on the right, an American whaler who had been previously shipwrecked.



- Admire the dignity of this expedition member—posing here with the bird he had likely shot—in his tent wearing a top hat, vest, suit coat, and pocket watch.



- Juxtaposed with the barren isolation of an observing site.



- And of what does this photograph speak? At first, it appears simply to be a group photo of resting military men—until you observe the cannon barrel in the foreground next to a dead body. Suddenly the photograph speaks of armed foreigners and, likely, of a dead local man. Is the beginnings of the war photojournalist ushered in during a transit of Venus expedition?



Photography of a different sort—cinema—also had some of its roots in technology developed with the transit of Venus in mind. The astronomer Jules Janssen devised a "photographic revolver" in an attempt to capture the internal contact times from a site in Japan. His device, based on the mechanics of a Colt revolver, exposed an image every 1.5 seconds...on a daguerreotype plate...that rotated once in 72 seconds...



Behold the results (see movie at <http://web.inter.nl.net/users/anima/chronoph/janssen/index.htm>)...Soon after this transit of Venus sequence, photographers were imaging horses on the run and birds in flight.



Not all of the 19th century artwork associated with the transit was stern and science-related. Sometimes it was humorous, as reflected in postcards by Cynicus...



...and a caricature of the Earl of Crawford in *Vanity Fair* magazine.



On the topic of humorous art, as part of a local art exhibit that we were planning, we were offered the use of this beautiful 4th century reproduction of the original Aphrodite of Knidos.



However, after I saw this drawing, entitled *The Transit of Venus*, we decided not move the statue to our exhibit.



Magazine illustrators contributed to the 19th century transit of Venus picture as well. The website at NASA's Sun-Earth Connection notes:

Harper's Weekly was a popular, illustrated journal that ...was world-famous for its many illustrations, themselves works of art, executed in wood block engraving and later pen-and-ink...The Venus Transits of 1874 and 1882 both found their stories told in this journal..." (cover on April 28, 1883)

This cover art from 1883 shows children viewing the transit through smoked glass.



Naturally, having such a storied past, the Transit of Venus is cause for musical creativity. The U.S. Library of Congress notes:

Musical compositions, published around the same time and probably related to the same event, include "The Transit Galop," by Ed. J. Case; "Venus Galop," by William G. Dietrich; "Venus Polka Quadrille," by Carl Heinemann; and "Venus Waltz," an arrangement by Thomas J. Armstrong.





One of the more enduring pieces is by bandmaster John Philip Sousa, who had a fondness for the transit of Venus. Composed not to commemorate the transit but to honor the recently-deceased American physicist Joseph Henry, Sousa's *Transit of Venus March* debuted in 1883.



Decades later, Sousa would author a fictional novel entitled *The Transit of Venus*, which describes the voyage of the Alimony Club, a group of misogynist men who embark on a transit of Venus expedition to get away from women. The convictions of the women-haters are challenged when the captain reveals the existence of a stowaway—



his lovely young niece.



The poet Oliver Wendell Holmes is more interested in the human drama around the observer than he is of the scientific event. In an [excerpt](#) from *The Flaneur: Boston Common, During the Transit of Venus*, Holmes cites the astronomer at the telescope who charges a few dimes to look at the transit of Venus:

If Venus only comes to time,
(And prophets say she must and shall,
To-day will hear the tinkling chime
Of many a ringing silver dime,
For him whose optic glass supplies
The crowd with astronomic eyes --
The Galileo of the Mall.

In the twentieth century, there were no transits of Venus, yet the arts saw occasional reference to the topic:



• In anniversary coinage and stamps;



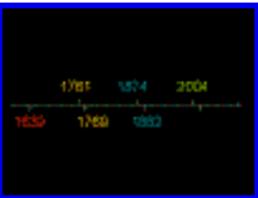
-  In Maureen Hunter's 1992 play, *The Transit of Venus*, which gives a fictional account of the determined yet frustrated French scientist Le Gentil;



- In occasional artwork (this found on the Internet);



- And in Willow Mackey's 1969 ditty commemorating the 200th anniversary of Captain James Cook's voyage to Tahiti .



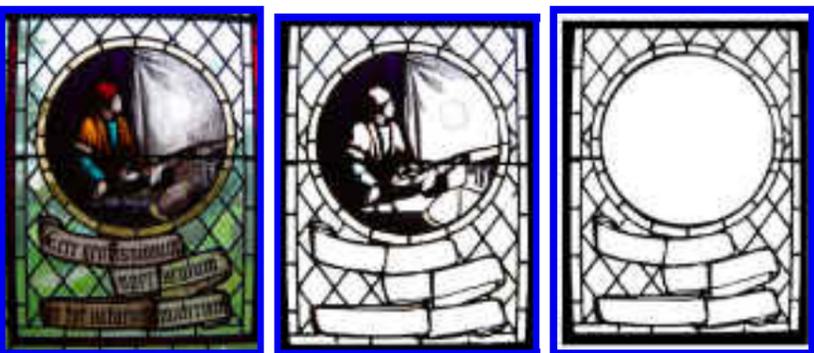
When the transit of Venus approached in 2004, few people knew of the phenomenon or of its historical significance. However, once the transit's storied past became known, astronomy educators steadily advocated outreach programs and public observing opportunities. In the arts, a combination of reprised themes and original works generated widespread enthusiasm. This time we had the added benefit of seeing artwork from all ages.



Back in Hoole , England , the hometown of Jeremiah Horrocks, St. Michael's Church prepared for a 2004 stained glass window.



Local schoolchildren contributed artwork toward this new roundel's design.



We gave blank versions of the original pattern to youngsters and elders alike. After they had learned some background about the transit of Venus...





...We asked them to draw what they thought was significant about the transit, and to choose their words for the stained glass banner. It's always fun working with kids, such as this group of Girl Scouts.



For one of them, the important feature of the transit that merited commemoration was that June 8th was her birthday. The very day she was celebrating her 8th orbit around the sun, the world would be celebrating a concurrent celestial dance.



Another pseudo-stained glass window, drawn on clear plastic by Cindy Tachman, is displayed in the conference exhibit space.



Also near Hoole, artists of a different sort—stone carvers—were inspired by the transit of Venus and its original recorder, Jeremiah Horrocks. After much late-night tapping...



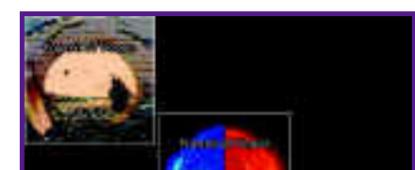
...the Croston Carvers erected this sandstone monument on a site between the village of Bretherton and Carr House, where Horrocks allegedly made his historic observation.



John Philip Sousa's *Transit of Venus March* was revived for over 2 dozen performances, from small ensembles (this one in Peoria , Illinois)...



...to full orchestras (this being in Mishawaka , Indiana).





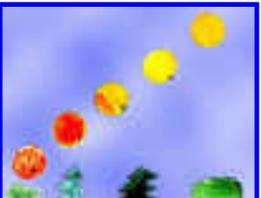
New forms of expression and communication were available in 2004 that did not exist for prior transits, such as the type of facility at which we've gathered—the planetarium. I and a planetarium colleague, Art Klinger, were inspired to produce a planetarium show that introduced the digital realm to the transit of Venus story.



For example, computer graphics specialists from NASA's *Kepler* mission contributed animations showing how transits are used to find new worlds in the quest to understand our place in the cosmos.



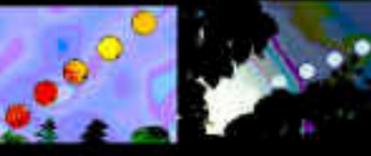
We borrowed the artwork from a 7-year old's 2003 school project, manipulated the white background with computer graphics...



...and displayed this sequence, predicted by the child, in the planetarium program. For comparison, during the actual transit,



...this time-lapse sequence was taken of the transit from the Netherlands by Cees Bassa ...



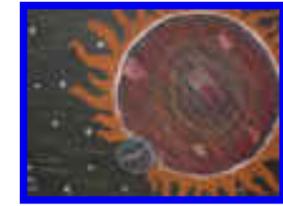
Here they are side by side.

The European Southern Observatory was a pivotal institution in engaging the public for the 2004 transit. Among its activities was an art contest that received over 400 entries. [Sequence of 12 slides.]





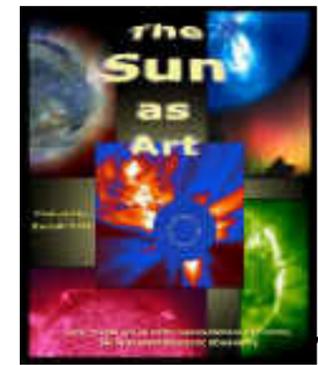
As I have mentioned, as June 8th approached, art had a lead role in *generating enthusiasm* for the unknown—namely, the 2004 transit. In South Bend , Indiana , youths from the local [Boys & Girls Club](#)...



...created their interpretations of the transit.



In neighboring Mishawaka , Indiana , a local gallery hosted an [exhibit of transit of Venus art](#), of which several pieces are on display here at the Adler Planetarium.



The exhibit included the NASA collection entitled *The Sun as Art*, compiled by Dr. Steele Hill , who will be presenting a paper at this conference on Friday.



As I share a few images, I will also play John Wesley Barker's 2004 flute music entitled [Transit of Venus 3](#).

[NOTE: Images do not accompany the artists named below for I have not yet sought permission from each to avail their art online.]

- James Borden
- Leah Kelly Schrock
- Tamarah Lewis
- Norma Helen or Nancy Hendrix
- Anne Binder
- Fritz Olsen
- Dayle Brown
- Cathy McCormick
- Bradford Hansen-Smith
- Ruth Tuholski
- Mackenzie Korth



A few of the artistic designs even found their way onto the labels of a flavorful beer, which drew more attention to the celestial apparition.



Eventually, June 8th dawned around the Great Lakes . Would anyone show up at 5 o'clock in the morning for a fleeting glimpse?



Yes! I had wondered whether many people would be moved by the 2004 transit.



A modern—though unscientific—means to evaluate the appeal of the transit is Google. According to Google's *Zeitgeist* feature, which interprets the search engine's query patterns, the transit of Venus was the single most popular event in all of June 2004.



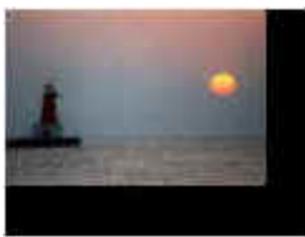
That morning, seeing the public's reaction, I anticipated a surge of new transit of Venus art. In addition to the traditional forms, modern media would facilitate a new genre for this event.



Just as William Rau had applied the scientist's new tool of his day—in his case, photography—to his craft, so too would observers of the 21st century. Scientists and laymen alike would record their experience with digital technology, with the consequence, intentional or not, being artistic imagery.

So, if you haven't seen some of the 2004 results, here is a sampling of images. In the background is new music by Joby Talbot entitled *June: Transit of Venus*.

[SEQUENCE of about three dozen images. See [images.htm](#)]



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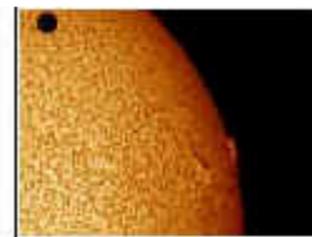
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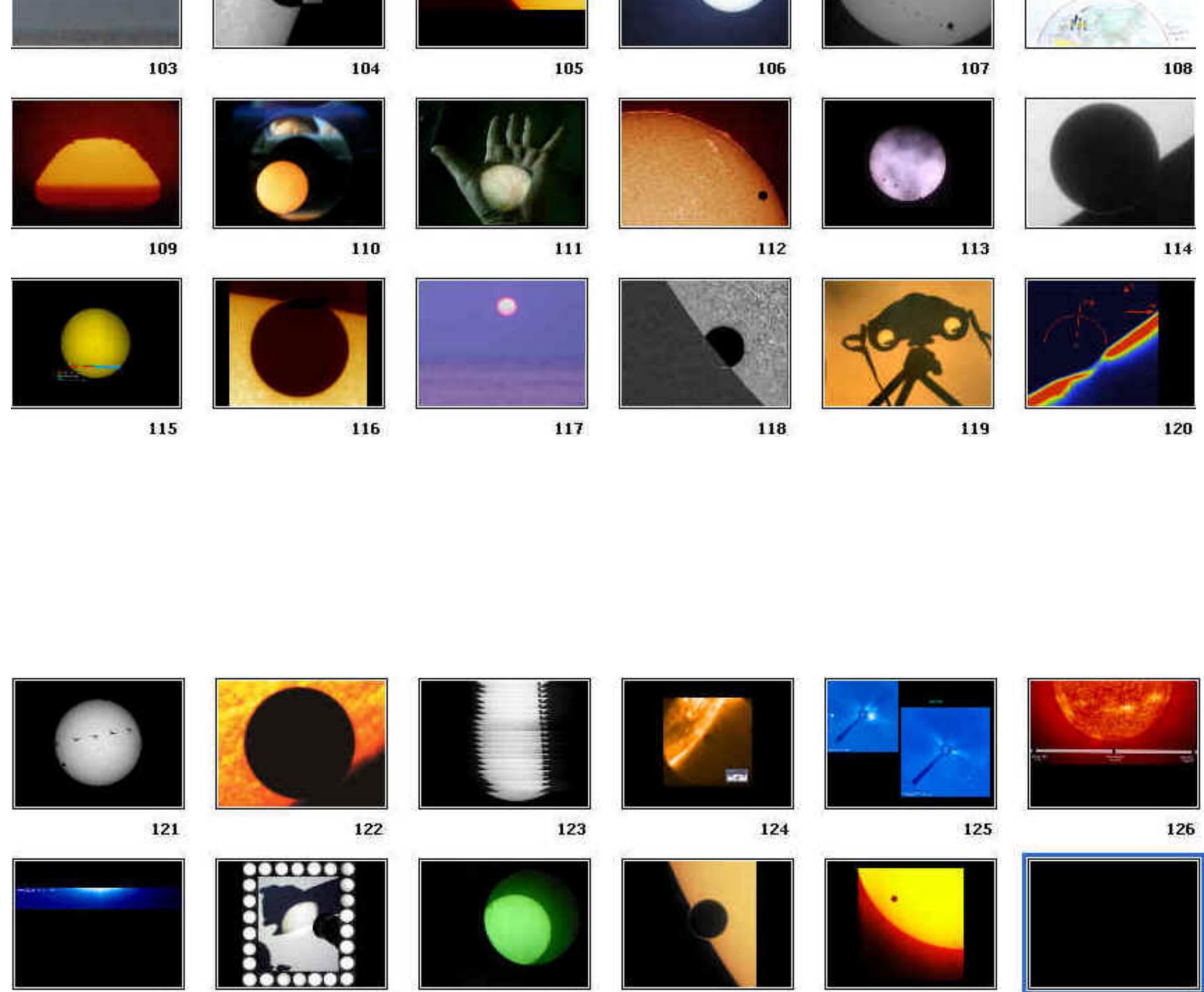


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This has been my admittedly incomplete catalog of artwork related to the transit of Venus. If you want links to more information and images, I invite you to visit the website www.transitofvenus.org. Personally I enjoy the transit of Venus because it is an opportunity to celebrate the multiple disciplines associated with astronomy. It embraces history, science, math, technology, and art.



But it was the arts that took me away from the technical aspects of which I had been so immersed, and the arts that showed me a different side.



It was the artwork that invited me to step back, to peer safely at the dotted sun through the eyes of others, and to marvel at how astronomical phenomenon inspire the human spirit.

Thank you.

www.transitofvenus.org

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