What's New?

Below are new items added to our growing collection. Please feel free to suggest Transit of Venus resources or links for teachers, parents, educators, the media, and observers in general. You may e-mail us at bueter@transitofvenus.org.

Year 2009

September 8	Link added to PHM Planetarium Schedule page: New 2009-2010 Public Show Schedule
January 9	Correction to napoleon3.htm: An image labeled as Foucault was erroneously an image of Hippolyte Fizeau. Thanks to William Tobin for noting the gaffe. (See caveat from our companion site.)

Year 2007

November 12	Link added to "Education" page: http://video.google.com/videoplay?docid=-7601411332170624 03&q=transit+venus NASA Connect offers lessons and exercises on scaling the solar system. Link added to "Images" page: http://www.islandastro.com/transit-sm.JPG Sunrise collage of 2004 transit by Bill Townsend for Island Astronomy in Maine. http://www.youtube.com/results?search_query=transit+of+Venus&search=Search A search of YouTube (which did not exist during the 2004 transit of Venus) offers much video content on a diverse range of transit of Venus topics. Link added to "Black Drop Effect" page: http://www.metaresearch.org/home/Viewpoint/blackdrop.asp Tom Van Flandern proposes that the black drop effect is a "manifestation of irradiation, the spreading of photons by rapidly moving air cells."
June 6	Image added to "Historical Observations" page: cowans.jpg "Boudoir Photograph of Territorial Transit of Venus Party, anonymous image of a large mixed party of observers...likely of local Denver citizenry with several telescopes and a few theodolites set up for viewing the transit." Image courtesy of Cowans Auctions, Inc., Cincinnati, Ohio. Link added to "Education" page: www.awapress.com Book: *The Transit of Venus, How a Rare Astronomical Alignment Changed the World*, a compilation by scientists and historians, adapted from Royal Society lecture series. ISBN: 978-0-9582629-7-2. Links added to "Home" page:

	www.myspace.com/2009yearofastronomy MySpace page supports the International Year of Astronomy in 2009 http://www.astronomy2009.us/twiki/bin/view Six major themes support the U.S. goal for the International Year of Astronomy in 2009: "To offer an engaging astronomy experience to every person in the country, and build new partnerships to sustain public interest." (Note: Five years until the 2012 Transit of Venus.)
January 30	Image added to "Transit of Mercury" page: mercury-marschall.jpg Transit of Mercury, 1914 November 7, photograph taken at Greenwich; image courtesy of Laurence Marschall. Link added to "Historical Observations" page: http://home.hetnet.nl/~smvanroode/history.html Overview with images from many historic sites from which the transits of Venus was observed and timed; notes the current status of the observing site, such as remnant equipment or commemorative plaques. From Steven van Roode. Link added to "Black Drop Effect" page: http://home.hetnet.nl/~smvanroode/blackdrop.html Describes history of black drop effect through modern understanding of the phenomenon and implications for observers. Cites literature that concludes "the true time of interior contact is halfway between the formation of the black drop and the breaking of the thread." From Steven van Roode. Link added to "2012 Transit of Venus" page: http://home.hetnet.nl/~smvanroode/details.html Details and prospects for the 2012 transit. This website automatically detects your location and depicts it on a map. It then calculates your local circumstances (such as interior and exterior contact times) for the 2012 transit of Venus. Your time zone and daylight saving time (DST) option are automatically selected. Or you can drag a marker to a different observing site on a map or search for an address and it will instantly update the data. Website also includes observing guidelines, weather prospects, a calculator to compute the solar parallax using the timings from two sites (e.g., yours and someone else's), details about historic transit of Venus expeditions, and more. Courtesy of Steven M. van Roode.
January 24	To start the new year, we are switching the host of this website to Dreamhosters.com. Thank you to the people who are still sending new Transit of Venus material.

Year 2006

December 8	*New* "US Naval Observatory II" page added: usno2.htm Over 150 images from the archives of the United States Naval Observatory Library chronicle the 19th century expeditions to time the transit of Venus around the globe. Images include rare photos, handwritten notes, stereographic cards, log entries, and diagrams.
November 27	Links added to "Transit of Mercury Images" page: • http://antwrp.gsfc.nasa.gov/apod/ap061125.html 3D composite of the sun and Mercury, to be viewed through red/blue glasses; by Greg Piepol. • http://77illinois.homestead.com/files/pics/transit2.html Images from Nevada; by Bart Benjamin.
November 20	Links added to "Transit of Mercury" page: • mercury-images.htm Images of the 2006 transit of Mercury as seen at a public gathering in Mishawaka, IN. • http://www.spaceweather.com/eclipses/gallery_08nov06.htm Collection of images of the transit of Mercury as seen from around the world.

November 8	Transit of Mercury Link added to "Transit of Mercury" page: http://www.williams.edu/astronomy/eclipse/transits/transitofmercury.htm Jay Pasachoff and Glenn Schneider explore the science of the inner planets during transits. For the 2006 Mercury transit, they will "attempt to measure the sodium component of Mercury's extremely tenuous 'atmosphere,' measure its height, and determine how it varies from Mercury's pole to its equator. They will additionally use the polarimetry capability of the instrument to try to detect the weak Mercurian magnetic field against that of the Sun." See November 2006 press release for event details, as they will be part of webcast from Hawaii. Added to "Air/Space Autographs" page: phm/autographs.htm Autographed photos of the following key figures are among the collection at the PHM Planetarium & Air/Space Museum: • Lieut. Gen. James H. Doolittle • Capt. Eddie Rickenbacker • Jerry L. Ross • Neil Armstrong • Orville Wright • Dr. Wernher von Braun • Milton O. Thompson
November 3	New "View the Transit" page added: mercury-view.htm • http://sunearthday.nasa.gov/2007/events/mercurytransit.php See "Local Happenings" on left navigation bar for events in your area. Because observing opportunities are rapidly growing as the November 8, 2006, transit of Mercury approaches, we encourage organizers to list their event at the NASA Sun-Earth "Local Happenings." • phm/mercury.htm The PHM Planetarium in Mishawaka, IN, will have a special program on Tuesday, November 7, 2006, at 6:30 p.m. that will convey the significance of the transit of Mercury, what observers can expect to see, and insight into the planet closest to the sun. On Wednesday, November 8, 2006, the planetarium will set up solar-filtered telescopes for the public to view the transit of Mercury. • http://astroday.net/MercTransit06.html Mercury Transit Hawaiian Style offers webcasts through multiple telescopes and wavelengths (including attitude). "Learn about solar research on Maui, image restoration algorithms, the NASA Messenger mission to Mercury, total solar eclipse experiments in Libya, Hawaiian cultural astronomy and much, much more." • http://www.slooh.com/transit.php Slooh.com,a live online observatory, will have a free page of the entire 5 hour transit with live commentary. David Levy, Eli Maor, and Bob Berman will be among the many astronomers and authors broadcasting during the live web show. Links added to "Transit of Mercury" page: • http://messenger.jhuapl.edu/ Messenger is a NASA Discovery mission to conduct the first orbital study of the innermost planet. Now en route, the spacecraft will be inserted into orbit around Mercury in March 2011. • http://www.seds.org/nineplanets/nineplanets/mercury.html Background on Mercury and our scientific understanding of the planet, with emphasis on images returned from the Mariner 10 spacecraft. Note: Software, hardware, and time are not allowing all additions to be published at this time. Sorry about the limitations on adding new material as the transit of Mercury approaches.
	Added to "Air/Space Autographs" page: phm/autographs.htm Autographed photos of the following key figures are among the collection at the PHM Planetarium & Air/Space Museum: • Charles Sweeney and Fred Olivi • John Young

November 1	• Col. Francis "Gabby" Gabreski • David Scott • Eugene Cernan • Ron Evans • Charles Duke • James Lovell • Eugene Krantz • John Young • Don Knotts • Spaceship One team • Burt Rutan • Liwei Yang • Nie Haishang and Fei Junlong • "Original 14" Taikonauts
October 30	Links added to "Transit of Mercury" page: • http://nasadln.nmsu.edu/dln/content/catalog/details/?cid=546 NASA coverage of the transit of Mercury features a live webcast, a panel of scientists sharing their expertise, and lesson plans. Targets students and informal educators for grades 5-8; from the NASA Digital Learning Network. • http://www.exploratorium.edu/transit/ The Exploratorium will provides a live webcast of the transit of Mercury from Kitt Peak. Additionally, animation shows Mercury passing between earth and sun during Mercury's orbits around the sun. • mercury-eckstein.htm Auction item: Eckstein's painting of "The Transit of Mercury, on the 7th of May 1799."
October 20	Link added to "Transit of Mercury" page: http://www.adlerplanetarium.org/special/index.shtml The Adler Planetarium in Chicago will be hosting a special Transit of Mercury observing event on Nov. 8 from 1 pm - 4 pm featuring telescope observing and live webcasts of the transit from other locations.
October 18	Images added to "Transit of Mercury" page: mercury.htm • mercury1878cover.jpg Reports on Telescopic Observations of the Transit of Mercury, May 5-6, 1878. Includes individual reports from Asaph Hall, William Harkness, J.R. Eastman, Edward S. Holden, and Dr. Henry Draper. • mercury-1878fig2.jpg The moment of true contact occurs when the undulaation of true sunlight across the dark space is just beginning. • mercury-draper_obs.jpg Arrangement of the instruments and telescope at Dr. Henry Draper's Observatory • mercury-irradiation.jpg The black drop effect is attributed to "a very variable amount of irradiation of bright images on the retina," though with caveats.
October 16	Link added to "Transit of Mercury" page: www.thechildrensmuseumct.org The Children's Museum of West Hartford, CT, will offer telescope viewing, a live webcast in the planetarium, Starlab programs on Mercury and transits, and children's crafts.
October 11	Item added to "Transit of Mercury" page: mercury.htm The PHM Planetarium in Mishawaka, IN, will have solar-filtered telescopes available for the public to view the November 8, 2006, transit of Mercury.
September 30	Link added to "Transit of Mercury" page: http://home.hetnet.nl/~smvanroode/mercury.html Find out if you will be able to see Mercury during the November 8, 2006, transit; compute your local circumstances by adding your latitude and longitude. From Steven van Roode.
September 29	Image added to "Transit of Mercury" page: doppel-mercury.jpg In 1742, Johann Doppelmayer features transits of Mercury and Venus in *Atlas Coelestis* while describing

	phenomena associated with the inferior planets (Plate 7). Doppelmayer illustrates the path of Mercury across the face of the sun for the November 6, 1720, transit of Mercury.
September 19	New "Transit of Mercury" page added: mercury.htm A transit of Mercury will be visible around much of the world on November 8, 2004. Details, local observing opportunities, images of past transits of Mercury, and safe viewing techniques are addressed. As new events are planned and announced they will appear at mercury.htm.
September12	New "ISS Transit" page added: iss.htm Witness the International Space Station (ISS) transiting the sun through a rear projection screen that was made for the transit of Venus.
September 1	Link added to "Home" page: http://sunearth.gsfc.nasa.gov/eclipse/OH/transit06.html Special Announcement: A transit of Mercury will occur Wednesday, November 8, 2006. Image added to "Miscellaneous" page: stereocard-camp.jpg Stereocard: American Views, Popular Series, Transit of Venus Expedition, Chatham Island, No. 10128, titled: "The Camp, Wangaroa Bay."
August 18	Images added to "Miscellaneous" page: stereocard6_pix.jpg and stereocard6_text.jpg *Rollins' Transit Series* of stereocards features images from Kerguelen Island in 1874. The text notes, "Ship, English vessel, one mile in Royal Sound...There were 73 days of snow and rain during the 84 days the party remained there, and the mercury ranged from 8 degrees to 23 degrees below zero."
August 13	Added to "Miscellaneous" page: • bronze_medal.JPG and bronze_medal_back.JPG A bronze medal by A. Dubois commemorates the 1882 transit of Venus. In legend : QVO ° DISTENT ° SPATIO ° SIDERA ° IVNCTA ° DOCENT. Inscription in five lines : INSTITUT DE FRANCE / ACADEMIE DES SCIENCES / PASSAGE DE VENUS / SUR LE SOLEIL / 6 DECEMBRE 1882. Courtesy of Art Medals. • crosby.jpg Harry Crosby publishes his poetry in *Transit of Venus* from Black Sun Press in 1929. Shown is the poem "First Meeting" ("lorsque Vénus est tout entière entrée dans le disque"). Courtesy of John Breckenridge. Link added to "Images" page: http://www.ast.cam.ac.uk/~ipswich/Observations/ToV/ToV.htm Observers affiliated with the Orwell Park Observatory (U.K.) sketch and photograph the transit and analyze their timings. Image added to "Historic" page: matavai.gif 18th century view of Matavai Bay, Tahiti, at which Cook observed the transit. Link added to "Shop" page: http://www.ast.cam.ac.uk/~ipswich/Observations/ToV/Plates.htm The Orwell Astronomical Society (Ipswich) in Suffolk (UK) offers its members (and limited ebay sales of) a commemorative bone china plate.
August 12	The ***Lighting Issues*** features now reside at www.nightwise.org.
April 10	Link added to "Images" page: http://www2.eng.cam.ac.uk/~hemh/transit.htm Dr. Hugh Hunt uses a modified "pinhole camera" to project an image of a transiting Venus into a darkened room at Trinity College Cambridge.
	Links added to "Lighting Issues" page:

March 9	Links added to "Lighting Issues" page: • http://www.globe.gov/GaN/observe.html Family Packet for *Globe at Night* is online. Event is March 22-29, 2006. • http://www.globe.gov/GaN/teacher_download.html Teacher Packet for *Globe at Night* is online. Event is March 22-29, 2006.
February 10	Links added to "Lighting Issues" page: • http://www.globe.gov/GaN/index.html Globe at Night is a worldwide campaign to observe and record the magnitude of visible stars as a means of measuring light pollution in a given location. Join this project of coordinated observations **March 22-29, 2006.** Website has an effective simulator to show the limiting magnitudes of stars in the constellation Orion. • http://www.sciencenews.org/articles/20060107/bob9.asp Long-term study suggests that bright light at night is a risk factor for breast cancer. Apparently light suppresses the nighttime production of melatonin, a hormone that has slowed breast cancer growth in lab experiments. • http://www.urbanwildlands.org/Resources/LongcoreRich2004.pdf Paper addresses subtle ecological consequences of night lighting. Link added to "Solutions" page: http://www.softlite.com/ Soft Lighting Systems claims its sports facility lights permit no direct light above the horizon.
January 29	Added to "Countdown" page: countdown.htm Pictures of "Countdown to *Science Alive*" show Orion the Hunter, "Albie" Einstein, and Sally Ride sharing their respective stories. Library visitors enjoy viewing stars in a planetarium and planets through telescopes, in spite of the rain.
January 19	Links added to "Lighting Issues" page: lights.htm The loss of the night sky in less than a century and a half is strikingly evident from these illustrations of the stars and the Milky Way over London and over Paris. • http://www.atlascoelestis.com/22.htm *The Midnight Sky, London, 1869*, Edwin Dunkin. • http://www.atlascoelestis.com/guil%2025.htm *Le Ciel, Paris 1866,* Amédée Guillemin.

Year 2005 (below)

December	*New* "Time Zone" page added: timezone.htm As Indiana considers time zone changes, one feature seldom in the dialogue is the position of the analemma, the figure-8 path the sun makes through the seasons. The noon analemma shifts eastward from standard time to daylight time, as it does from Central time to Eastern time. If you are choosing your time zone and if you believe Daylight Time saves energy dollars, then the analemma shift can have significant implications. *New* "Winter" page added: phm/winter.htm The *Winter Village* display is a highlight of the December 2005 holiday celebrations at the PHM Planetarium & Air/Space Museum. *New* "Countdown" page added:

	countdown.htm "Countdown to *Science Alive!*" features astronomy programs for youths on Sunday, January 29, 2006, in South Bend, IN. Supported by AstroCamp at YMCA Camp Eberhart in Three Rivers, MI.
November 30	*New* "Paris Observatory" page added: paris.htm On a domed ceiling within the Paris Observatory is a magnificent painting representing the Transit of Venus. Images courtesy of Debra Lazar. *New* "Workshop" page added: workshop.htm A light pollution workshop at the Great Lakes Planetarium Association (GLPA) 40th Annual Conference suggests techniques for addressing light pollution with a wide range of lighting stakeholders. Links added to "Frequently Asked Questions" page: • http://sunearth.gsfc.nasa.gov/eclipse/transit/venus/Sun2004+2012-1.GIF Path of Venus across the sun's disk in June 2012; from Fred Espenak. • http://home.hetnet.nl/~smvanroode/index.html Local circumstances for 2012 transit of Venus; from Steven van Roode. • http://sunearth.gsfc.nasa.gov/eclipse/transit/venus/city12-1.html Contact times (Universal Time) and corresponding altitudes of the Sun for 121 international cities; from Fred Espenak. • http://sunearth.gsfc.nasa.gov/eclipse/transit/venus/city12-2.html Contact times (Universal Time) and corresponding altitudes of the Sun for 60 cities throughout the USA; from Fred Espenak. • images.htm Images taken worldwide of the 2004 transit of Venus.
August 23	Link added to "PHM Planetarium" page: http://cleardarksky.com/c/PnnHrMPINkey.html The PHM Planetarium Clear Sky Clock allows skygazers to check the anticipated local observing conditions.
August 22	Links added to "Lighting Issues" page: lights.htm • www.centerforhistory.org/vanishing_sky.html, *TheVanishing Sky* exhibit is at the Northern Indiana Center for History from Sept. 3 to November 13, 2005. • www.glpaweb.org/conference.htm, *GLPA, We Have a Problem*, a light pollution workshop, will be featured at the Great Lakes Planetarium Association (GLPA) Annual Conference on October 23, 2005, in Grand Rapids, Michigan. • http://unihedron.com/projects/darksky/; Sky Quality Meter (SQM) allows individuals to quantify sky brightness at their favorite night sites.
August 8	Link added to "NEI Focus Group" page: focus.htm NASA announces grant opportunities based on NEI Focus Group results: • The final report of the first year of NASA Explorer Institutes is now available online at http://education.nasa.gov/divisions/informal/overview/F_Explorer_Institutes_Report.html. • There is also information online regarding the 2005 internal funding opportunity: http://education.nasa.gov/divisions/informal/overview/F_2005_Funding_Opportunity.html Letters of intent are due this Friday, July 22. Proposals will be due Sept. 2, and selections are expected by Sept. 30. (July 18, 2005)
	New "INSAP V" page added: insap5.htm *Moved by a Rapid Transit* catalogs the artwork commemorating the transit of Venus from the 18th century

July 16	through 2004. Presented by Chuck Bueter at the Inspiration of Astronomical Phenomena (INSAP V) Conference at the Adler Planetarium & Astronomy Museum on June 28, 2005, the paper with images touts the role artists had in generating enthusiasm for this seemingly obscure celestial event..
July 15	Links added to Lighting Issues page: lights.htm • http://www.inquinamentoluminoso.it/dmsp/index.html *The Night Sky in the World* describes surveying and mapping of night sky with satellites; maps the effects of the light pollution on the night sky; predicts future effects of light pollution on the night sky; and maps the entire sky of individual sites. • http://www.bobcrelin.com/author.html *There Once Was a Sky Full of Stars*, a children's book by Bob Crelin, "offers hope and encouragement by describing simple things we can all do to help bring back the stars." Available from Sky Publishing. • http://en.wikipedia.org/wiki/Light_pollution *Wikipedia, The Free Encyclopedia* addresses light pollution issues. Link added to "Music" page: http://www.rtaylor.co.uk/cgi-bin/buy/Operation/ItemLookup/ItemId/B0009FHLGM/ *Once Around the Sun* by Joby Talbot includes new song entitled "June: Transit of Venus." Links added to "Images" page: • http://www.muncie.k12.in.us/planetweb/transit_of_venus_activities.htm Muncie, Indiana, celebrates the transit with music, planetarium program, and observing opportunity. • http://venustransit.pghfree.net Photographs from Pittsburgh include a projection onto a white card (not shown). • http://www.astronomy.no/summary.html Results and reflections from one of the most active observing sites--Frognerparken in Oslo, Norway. • http://www.astropix.com/HTML/G_SUN/VTRANSIT/HTM Astrophotographer Jerry Lodriguss applies color-coded gradient map and other techniques to his images. • http://www.poughkeepsiejournal.com/apps/pbcs.dll/article?AID=/20050706/LIFE/507060316/1005/NEWS Kathy McLaughlin, winner in Women in Photojournalism contest, includes transit of Venus picture among her select photos. Link added to "Black Drop" page: http://skyandtelescope.com/news/article_1277_1.asp Sky & Telescope magazine asks, "Where Was the Black Dot?" after the 2004 transit of Venus. Link added to "2012" page: http://www.nao.rl.ac.uk/nao/transit/ The HM Nautical Almanac Office "presents an observational overview of the transits of Venus in the telescopic era as well as the six centuries or so at either end of this period." Details are provided for "the rare phenomena covering the interval from the 11th century through to the 27th century." The 2012 data, with emphasis on the view from the United Kingdom, is at www.nao.rl.ac.uk/nao/transit/V_2012/index.html.
May 11	Added to Lighting Issues page: lights.htm St. Joseph County Council, Indiana, has acted to protect the night sky by adopting a new County Zoning Ordinance that includes an inaugural Lighting Ordinance.
March 17	Link added to "Images" page: lent.jpg Craig Lent dodged sprinklers to capture this sequence from Niles, MI.
	New Critique page added: critique.htm Comments address proposed lighting ordinance for St. Joseph County, IN, for which a County Council vote

February 16	is imminent. *New* County Contacts page added: county.htm Page lists contact information for St. Joseph County Council and Area Plan personnel who are involved in the proposed lighting ordinance. *New* St. Baldrick's page added: baldrick.htm Chuck Bueter and the PHM Planetarium & Air/Space Museum are participating in the March 17, 2005, St. Baldrick's Celebration, an international fundraiser to benefit the search for a cure for childhood cancer.
February 3	Obviously I have been away pursuing other endeavors. Thank you to all who have continued to correspond about the 2004 transit of Venus. I am piggy-backing additional web pages related to other interests onto this website. Eventually I have to update the pages within transitofvenus.org and prepare for June 5-6, 2012. In the interim, I appreciate your ongoing support. -Chuck Multiple items added to Lighting Issues page...

Year 2004 (below)

December 13	Links added to "June 8" page: http://www.physics.nd.edu/venus%20at%20phm/index.htm University of Notre Dame physics students watch the transit of Venus from the PHM site in Mishawaka, IN.
	New Lighting Issues page added: lights.htm Addresses light pollution issues, with particular reference to northern Indiana. *New* "Google" page added: google.htm • The Google Zeitgeist feature lists the transit of Venus as *the single most popular event* for the month of June, 2004. • *New* Google search engine added to multiple pages; features the ability to search just this website for pages that have been crawled by Google. Please note that recently added items may take a few weeks to appear on the search results. • Google artists kindly recognize the transit of Venus on their June 8, 2004, banner. Links added to "Music" page, "Sousa" page, and "Peace" page: • http://www.transitofvenus.org/phmband-intro.mp3 Megan Dowell, Family Readiness Leader of the 428th MP Company, and Chuck Bueter introduce John Philip Sousa's *Transit of Venus March* at the Spring Band Concert; (audio only). • http://www.transitofvenus.org/phmband.mp3 The PHM Band performs John Philip Sousa's *Transit of Venus March* at the Spring Band Concert; (audio only). Link added to "2012" page: http://home.hetnet.nl/~smvanroode/ Details and prospects for the 2012 transit; courtesy of Steven M. van Roode. Links added to "Images" page: • http://members.rogers.com/science_sdc/science_photos/slides/transit_venus_chart.html Series of photographs from Ontario, Canada; courtesy Shawn Connelly. • http://w1.217.telia.com/~u21702585/venus.htm Images of Venus preceding June 8th culminate with transit of Venus images; courtesy H.G. Lindberg. Images added to "June 8" page:

November 30

- afterglow.jpg
  Image courtesy of Cathy McCormick.
- aligning.jpg
- darnell.jpg
- lapierre.jpg Image(s) courtesy of Don Darnell.

Added to "Art" page:
art.htm:

- New table lists names of participating artists, their medium, and the title of their artwork.
- glance.jpg Image of gallery owners and art exhibit hosts, Lenore and Jennifer

Added to "PHM Planetarium & Air/Space Museum Gallery" page:
phm/gallery.htm
Images show families observing the total lunar eclipses of November 8, 2003, and of October 27, 2004.

Link added to "Music" page:
http://johnwesleybarker.madasafish.com/compositions/transitofvenus.html
Transit of Venus for Flutes includes a solo study, a flute duet, and a concerto version, which commemorate the transit of Venus while noting the presence of flutes in the South Pacific as recorded by James Cook's expedition; from John Wesley Barker.

Link added to "Spacecraft" page:
http://www.spaceref.com/news/viewpr.html?pid=14873
Press release (August 24, 2004): "Network of small telescopes discovers distant planet (TrES-1)." Image courtesy of NASA JPL.

Link added to "Science & Math" page:
http://www.phy6.org/stargaze/Svenus2.htm
"Approximate calculation of the AU based on the June 8 transit of Venus, meant for the level of high school or beginning college and uses only algebra and simple trigonometry. It only relies on simulated data--specifically, predicted times of 2nd and 3rd contact for Cairo and Durban;" from David P. Stern.

Link added to "Safety" page:
http://www.rongross.com/misc/solarview/
Projection device from a simple heliostat; from Ron Gross.

Link corrected on "Music" page and "Sousa" page:
http://www.wgpark.com/page.asp?pid=10

Email feedback added to "Black Drop" page:

- "...Placing a small black circle inside and just in contact with a large white one (on a black background), I found that the degree of black drop increased when I zoomed out and decreased when I zoomed in. Likewise, viewing the screen from a distance I found that the black drop effect increased as I moved further away. I then reversed the colours of the image and produced an corresponding 'white drop effect'...Try this test: open the blackdrop.gif file . If you zoom in you will see that there is a distinct white separation between the two circles. As you zoom out this becomes less visible, and by zooming out (say) 8 times a marked black drop effect appears..." Courtesy of John Rushby-Smith.

Links added to "Miscellaneous" page:

- http://s87767106.onlinehome.us/art/TransitOfVenus.jpg
  Oil painting metaphorically depicts "Venus transiting the Sun (which doubles for a halo around an angelic/Luciferian Venus). The embodiment of Venus is sweeping her shield across the sword of war, as she flies over the 'Field of Mars', breaking the sword's blade and sending debris out over the city--the debris turning into flowers and peace." Courtesy of Stephen Marc Fox.
- http://abclocal.go.com/wls/news/collectioncorner/083104_cc_birdhouses.html
  News story: "Painter James Mesplé paid tribute to the recent Transit of Venus across the sun with his birdhouse made of antique barn wood and decorated with paintings and ceramic figures of Venus."

	Birdhouse was an auction item to benefit the Clarke House Museum, Chicago's oldest house.
August 17	Link added to "June 8" page: davis-report.htm Brian Davis writes a descriptive observing report about his experience celebrating the transit of Venus in Mishawaka, IN. Links added to "Images" page: • http://astrosurf.com/rondi/venus2004/ Photographs and movies with homemade H-alpha coronograph of Venus straddling the sun's limb; from André Rondi. • images.htm John and Linda Hare share their transit of Venus images from the Royal Observatory in Greenwich, England. • http://antwrp.gsfc.nasa.gov/apod/ap040717.html July 17, 2004: Transit of Venus Stereogram Links added to "Black Drop" page: http://www.metaresearch.org/home/Viewpoint/blackdrop.asp In noting "an irradiation effect – the apparent spreading of light from bright areas onto any adjacent dark areas," author Tom Van Flandern asserts that the well-understood black drop effect "provides a timing advantage rather than a disadvantage." Link added to "Historical" page: http://www.nojum.net/articles/venustransit/history/ Pouria Nazemi asserts in *Nojum, The Astronomy Magazine of Iran* that the Persian Islamic scientist Avicenna witnessed the 1032 transit of Venus. Avicenna claims in his book *Shifa*, "I say that I have seen Venus as a spot on the Sun's face." Link added to "Education" page: http://ds9.ssl.berkeley.edu/vteval/web_survey.aspx The Sun-Earth Connection solicits feedback on NASA's services provided for the 2004 transit of Venus. Respondents to the survey receive free Sun-Earth Connection posters.
June 27	Link added to "Science & Math" page: http://www.astro.uni-bonn.de/~dfischer/skyreports/2004/venus.html *The Astronomical Unit from differential astrometry of the 2004 Transit of Venus?* by Daniel Fischer. "Based on a handful of medium-quality photographs of the full solar disk taken during the 2004 transit of Venus, a first attempt to derive the AU by relative astrometry to two sunspots in AR 627 is made."
June 22	Links added to "Images" page: http://soho.nascom.nasa.gov/hotshots/2004_06_08/ Hot Shots for June 8, 2004, features movies of eruptive sun, with Venus passing below the sun from the SOHO spacecraft's perspective. Text notes how the transit of Venus improved the accuracy of SOHO by measuring the stray light coming from the solar disk that usually scatters inside the spacecraft's instrument. • http://soho.nascom.nasa.gov/hotshots/2004_06_08/frames/ SOHO captures Venus ducking below the sun; shown is 284A at 16:15. • http://soho.nascom.nasa.gov/hotshots/2004_06_08/frames/20040608_1012_tran_171.gif What looks like a scuba diver's view upward--or the opening of the firmament above--is a numerologist's gem. From the SOHO spacecraft at 2004-06-08 10:12. Images added to "U.S. Naval Observatory" page: usno-heliostat1.gif usno-heliostat2.gif Diagrams of heliostats from the USNO expeditions; provided by Robert Havlik.
	Links added to "Images" page:

June 21	• http://www.ocmboces.org/iss/mstsite/Graphics1/transitposter.jpg A poster from OCM BOCES shows a collage of images from Syracuse, New York, USA; courtesy of Susan Button. • www.astronomycafe.net A diary of the journey to webcast the transit of Venus from Greece; includes cultural experiences, the day of the transit itself, plus a post-mortem; from Sten Odenwald.
June 20	Links added to "Images" page: • http://atm.zaciatok.sk/atm/atm.nsf/0/0F3E5E0223691EF4C1256EB50034B66F?OpenDocument Tomáš Maruška and the Porter team capture the International Space Station transiting the sun from Bratislava. The handiwork of Thomas Fly and others sets up successful images of both the observers and the observed. • http://www-personal.umich.edu/~jimsmith/venus/ James Smith shares his images. • In Statesboro, GA, observers with the Georgia Southern Planetarium overcome heavy fog to capture the transit. Images and comments courtesy of Becky Lowder.
June 17	Links added to "Images" page: • http://www.hplfoundation.org/astronomy_night_events_transit_of_venus_photos.htm A crowd observes along the lakefront by the Adler Planetarium in Chicago, Illinois, USA; from Hinsdale Public Library Foundation. • http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/TRANSIT_04/TRACE/TOV_TRACE_INGRESS.html More newly processed images from TRACE. • http://www.inquinamentoluminoso.it/download/mondo_ridotto0p25.gif Some parts of the world missed the transit of Venus simply because of darkness--the sun never got above the horizon during the 6+ hours of transit time. Images from CONCAM project and Light Pollution Science and Technology Institute. • http://astrosurf.com/rondi/venus2004/ Sequence of images by Andre Rondi shows Venus moving beyond the solar limb. • http://gong.nso.edu/venus2004/ Overlay of the path of Venus as seen from multiple sites; from the Global Oscillation Network Group (GONG). • http://www.astro.uni-bonn.de/~dfischer/mirror/277.html Daniel Fischer's *The Cosmic Mirror* links to transit of Venus image galleries, press releases, individual reports, and media coverage. • http://dot.astro.uu.nl/DOT_Venus.html Dutch Open Telescope • http://iota.jhuapl.edu/venus615.htm David Dunham's account of his trip to Springs, Pennsylvania, USA • http://fermi.jhuapl.edu/transit2004/index.html Bob Jensen's images from Montpelier. • Sunrise from Venice, Florida, USA • june8.htm 50 new images from the Mishawaka, Indiana, USA, celebration of the transit Links added to "2012" page: • http://sunearth.gsfc.nasa.gov/eclipse/transit/venus/Map2012-1.GIF World visibility map of 2012 transit of Venus; from Fred Espenak. • http://sunearth.gsfc.nasa.gov/eclipse/transit/venus/city12-1.html Contact times (Universal Time) and corresponding altitudes of the Sun for 121 international cities; from Fred Espenak. • http://sunearth.gsfc.nasa.gov/eclipse/transit/venus/city12-2.html Contact times (Universal Time) and corresponding altitudes of the Sun for 60 cities throughout the USA; from Fred Espenak.

	Links added to "Historic" page: • http://www.astro.univie.ac.at/~wuchterl/Kuffner/2004/Venustransit/VENUS_Transit1874/Venus33.jpg "Waiting for the Transit of Venus, Eden; Plate XXXVI." • http://www.harryatkinson.com/ "The 1882 transit observed in Nelson, New Zealand, by a local astronomer, Arthur Samuel Atkinson, on behalf of the Royal Society." Link added to "Black Drop" page: http://www.astronomy.org.nz/aas/MonthlyMeetings/MeetingApr2003.asp Figure of Black Drop Effect in article by Grant Christie; from Auckland Astronomical Society.
June 15	*New* "Images" page added: images.htm *Images from the 2004 transit of Venus, including:* • http://www.vt-2004.org/photos/ Collection of *VT-2004* images, including the VT-2004 Photo of the Day; from the European Southern Observatory; • http://science.nasa.gov/spaceweather/venustransit/gallery_08jun04_page10.htm Several pages of images from SpaceWeather.com; • http://www.venusvoordezon.nl/resultaten/fotoalbum.php Diverse images and video from professional and amateur observers alike; • http://vestige.lmsal.com/TRACE/transits/venus_2004/ From the perspective of the TRACE spacecraft; • http://vt-2004.solarphysics.kva.se/movies/ Swedish 1-m Solar Telescope on La Palma; images and movies include black drop effect and the "elusive aureole outlining the disk of Venus."
June 10	New "June 8" page added: june8.htm A brief report on our transit of Venus experience at Mishawaka, Indiana, USA. We solicit links to your images and we appreciate written descriptions of your own transit of Venus experience. The pace at which material is uploaded to this site will slow down appreciably in the next few weeks.
June 8	Transit of Venus
June 7	The weather forecast in northeast Indiana is favorable. We invite you to join our Transit of Venus Celebration, which begins this evening at 6:00 p.m. Eastern Standard Time and continues through the transit of Venus on Tuesday morning. Thank you all for your ongoing support. We wish you clear skies.
June 6	*New* "Clouds" page added: clouds.htm What if cloudy weather threatens your view of the transit? There is always someone who has had it worse...
June 5	*New* "Instructions" page added: instructions.htm For the 1882 transit of Venus expeditions, the U.S. Naval Observatory printed a publication listing the duties of each member of the expedition team. Noting the experiences of the 1874 expeditions eight years prior, the book explains what the observer may expect to see and how to discern the instant of contact. Link added to "Kid Stuff" page: club.htm New "Club" page displays some of the transit of Venus artwork done by youths from the Boys & Girls Club of St. Joseph County, IN. Update added to "Monument" page: monument.htm "The stone is about completed, with much late night tapping..."
	Link added to "Observing" page: http://www.xs4all.nl/~carlkop/venus/transit.html

June 4	http://www.xs4all.nl/~carlkop/venus/transit.html Large list of webcasts from across the globe, including Astronet's role from Netherlands and Belgium. Note: Due to the number of webcasts being announced, I defer to the lists at Astronet (above) and the European Southern Observatory at http://www.vt-2004.org/central/cd-links/. Added to "Roadtrip" page: roadtrip.htm New *Calendar of Events and Timeline* describes the multiple events unfolding at the Mishawaka, Indiana, transit of Venus celebration. Features include planetarium programs, artifacts on display, stargazing, webcasts, sunrise observation of the transit, music, giveaways, and transit of Venus camaraderie. Link added to "Spacecraft" page: http://newsrelease.uwaterloo.ca/news.php?id=4098 "The Canadian Space Agency satellite SCISAT-1 (ACE) is set to take Venus Transit measurements using its on-board high-resolution Fourier transform spectrometer. SCISAT-1 will observe the transit as part of the ACE studies that are measuring and understanding the chemical processes that control the distribution of atmospheric ozone in the Arctic;" from the University of Waterloo. Link added to "Black Drop" page and "Projects" page: http://usna.edu/Users/physics/huddle/Beat%20the%20Black%20Drop.pdf Jim Huddle of the U.S. Naval Academy proposes "a variation of Halley's method that avoids the complications of the Black Drop Effect...and requests collaborators to test the method during the transit of Venus on 8 June 2004." Observers simply photograph Venus at fifteen minute intervals, noting the times of the photos. (PDF file) Link added to "Miscellaneous" page: http://venustransit.free.fr/ Simulation of Venus crossing the sun in real time (1x) and speeded up (10x and 100x); in Flash. Link added to "Non-English" page: http://www.venusvoordezon.nl/index.htm Live webcast of the Venus transit and a node for online calculation of the Sun-Earth distance.
June 1	*New* "Monument" page added: monument.htm Carving is well under way on a new monument by Croston Carvers to local hero Jeremiah Horrocks. In 1639 Horrocks predicted and was the first to observe the transit of Venus from Bretherton, Lancashire, UK. *New* "Cicadas" page added: cicadas.htm Sten Odenwald writes: "As the countdown for the Transit of Venus continues, and many of us are counting down for the emergence of the east coast Brood-X cicadas, I was curious how often we get cicadas during a transit of Venus..." Link added to "Black Drop Effect" page: http://www.phys.uu.nl/~vgent/venus/venus_text2.htm#black%20drop Bibliography: *The Black Drop and Related Phenomena*, from R.H. van Gent. Note: Email service restored (643 messages awaiting).
	Three notes from Chuck Bueter: 1. My email service has been disrupted since May 25. If you required a reply and have not heard from me, please resend your message to bueter@transitofvenus.org. If necessary, call. 2. As June 8th draws near, preparations for the transit celebration in Mishawaka, IN, (see roadtrip.htm) may prevent me from responding to all inquiries and requests. I appreciate your consideration in sending me your information. I'll do my best to address all parties. 3. I recommend you soon print webpages that you deem important. I cannot guarantee that this website will support all traffic in June.

May 31	Links added to "Observing" page: • http://www.dfconcepts.com/maps/ Venus transit plots with cities and times from Daniel Falla overlaid with country boundary data provided by David Dunham. • http://home.plex.nl/~gottm/doa/ Free software to calculate the local circumstances of the June 8th Venus transit from any location that you specify; also includes an animated view of the transit at 1 hour, 1 min., or 1 second intervals; from Adri Gerritsen of the Dutch Occultation Association (DOA). • http://v4.livegate.net/sjkastronomy/home.html "Pictures of the transit will be displayed every minute with a resolution of 640x480; broadcasting starts at 7.00 and ends at 13.30;" from Sander Klieverik. • http://home.freeuk.net/dgstrange/transit.venus.2004/ Webcam with "live images added on 2004 Jun 08, approximately every 15 minutes from 05:00 to 12:00 UTC;" from Worth Hill Observatory, Dorset, U.K. Link added to "Shop" page: http://www.spacewears.com T-shirts with transit of Venus images. Buy a shirt and receive a free pair of "eclipse shades." Link added to "Roadtrip" page: http://www.publicbroadcasting.net/wvpe/news.newsmain?action=article&ARTICLE_ID=643223 NPR radio interview describes local events occurring in the "Michiana" area. Link added to "Miscellaneous" page: http://www.norristownpreservationsociety.org/ A lecture and a reenactment of David Rittenhouse observing the transit, from the Norristown Preservation Society and the Delaware Valley Amateur Astronomers (DVAA), sponsored by the American Philosophical Society.
May 27	Added to "Road Trip" page: roadtrip.htm More details about the schedule of events in Mishawaka, Indiana, and pictures of the Main Observing Site. Features include planetarium programs; multiple viewing aids with solar filters; concessions, restrooms and parking; free gifts; webcast from overseas; broadcast of WWV time signal; etc. Added to "Matt Rumley" page: rumley.htm On Saturday, June 5, from 8:30-10:30 p.m. EST, Matt Rumley will perform at **The Pub** in Mishawaka, IN. Matt Rumley is the featured musician on *Transit of Venus* Program. **The Pub**, which serves *Transit of Venus Sunrise Ale*, is located on the northwest corner of Grape Rd. and Cleveland Rd. (S.R. 23), behind the MFB Bank. Link added to "Historic" page: rittenhouse-log.htm Log observatory David Rittenhouse built for the 1769 observations at his Norriton farm; image courtesy of Historical Society of Montgomery County. Links added to "Non-English" page: • http://www.ca2000pt.com/noticias/venus04/venus04.htm Portuguese Astronomical Club CA2000 maintain online, since December 2003, a dedicated page to June 8, Venus transit. We are also linked to the ESO observation program; site submitted by Mário Ramos. • http://www.vt-2004.org The European Southern Observatory is leading an extensive program that is loaded with information, and its website is continuously growing. This is a thorough website in multiple languages for transit of Venus observers, educators, and enthusiasts.
	Links updated at "Music" page and "Sousa" page: http://www.loc.gov/rr/perform/ihas/ The Library of Congress has compiled a thorough collection of music related to the transit of Venus, including John Philip Sousa's *Transit of Venus March*. You can see the entire history of Sousa's piece, hear a modern

May 24	orchestrated version, and download a FREE band score. There are several other musical pieces by various artists detailed at this Library of Congress website. Link added to "Observing" page: http://people.cs.und.edu/~rmarsh/VENUS/venusindex.html The University of North Dakota will provide a webcast of the Venus transit from India. Link added to "Non-English" page: • http://cosmos.astro.uson.mx/Ciencia/Planetaria/VT04/vt04.htm Observe, record, and have live webcast from Cairo, Egypt (in Spanish); site submitted by Antonio Sanchez. • http://astrosurf.com/ceu/venus2004.html "Dates of transits, contact times on Portuguese cities, the traject of Venus on the sun, safe rules about optic materials, and links to Portuguese webpages and international webpage;" (in Portugese); site submitted by Jorge Almeida. • http://www.venus-giessen.de/venus.htm "Science weekend in Giessen, Germany;" site submitted by Harald Schätzlein. Link added to "Education" page: http://www.nojum.net/transit2004/topics.asp Workshop in Iran on amateur astronomy and astronomy education, with emphasis on the transit of Venus.
May 17	Link added to "Observing" page: http://aa.usno.navy.mil/data/docs/Transit.html Online calculator computes the local Venus transit circumstances for any location on the Earth; from U.S. Naval Observatory. Link added to "Safety" page: http://www.exploratorium.com/venus/index.html You can track the transit of Venus live with no risk of eye damage from the sun by watching a narrated webcast from Greece; from the Exploratorium.
May 13	Link added to "Observing" page and "Education" page: http://www.exploratorium.com/venus/index.html The Exploratorium will provide a narrated webcast with four telescopes in white light filters and hydrogen-alpha filters. Watch the transit live, even if it is not visible from your site. [This webpage replaces http://www.exploratorium.edu/webcasts/.] Links added to "Shop" page: • http://www.mishawakabrewingcompany.com/SpecialEvents.html The Mishawaka Brewing Company has crafted *Transit of Venus Sunrise Ale* to commemorate the transit of Venus. "Brewed using four malts and only one hop variety (Centennial) *Transit of Venus Sunrise Ale* is brewed in the style of an India Pale Ale. It contains only malted barley, hops, water and yeast. The tasty brew (6.1% alcohol) is available both on tap and individually bottled with 8 different labels that celebrate the event. • art.htm Professional and amateur artists alike convey their interpretations of the transit of Venus experience at the *Transit of Venus Art Exhibit*. The collection of new art is displayed now through June at the Glance Eyewear Gallery, 1639 N. Ironwood Dr., Suite 2, South Bend, Indiana. Link added to "Miscellaneous" page: http://www.mediatracks.com/orderMAIN.html 05-09 broadcast of interviews of Sten Odenwald and Chuck Bueter addresses the transit of Venus; from Media Tracks Communication. Link added to "Non-English" page: Voyage à Rodrigue, l'ouvrage d'Alexandre-Gui Pingré qui parait dans la Bibliothèque Universitaire & Francophone, Le Publieur (en collaboration avec SEDES). Édition établie par le professeur Jean-Michel Racault de l'université de La Réunion. 378 p., 25 ?, ISBN 2-84784-122-9;

May 12	Added to "Art" page: Images of the T*ransit of Venus Art Exhibit* at Glance Eyewear Gallery, which opened Monday, May 10.
May 10	Link added to "Observing" page and "Education" page: http://www.vt-2004.org The European Southern Observatory is leading an extensive program that is loaded with information, and its website is continuously growing. This is a thorough website for transit of Venus observers, educators, and enthusiasts. [Though ESO was an original link on this website, the Venus Transit 2004 consortium page has grown considerably and should be revisited for its new material in many disciplines.] Link added to "Science and Math" page: http://www.vt-2004.org/Background/Infol2/EIS-B4.html Approximated method for the calculation of the parallax (with examples); from Venus Transit 2004 consortium. Change to "Black Drop Effect" page: Text of the answer regarding the Black Drop Effect and hydrogen-alpha filters is modified, courtesy of Jay Pasachoff. Link added to "Education" page: http://son.nasa.gov The Student Observation Network tracks solar storms and predicts the impact of solar activity, such as aurorae. Link added to "Historical" page:" http://transits.mhs.ox.ac.uk/ "A browsable database of historical instruments and images from collections around the world; from the Scientific Instrument Commission (SIC) of the International Union of the History and Philosophy of Science. Institutions and individuals are invited to develop the site by contributing their own material."
May 5	Link added to "Observing" page and "Black Drop Effect" page: http://home.hetnet.nl/%7Esmvanroode/venustransit/eng/eng_parallax.html#BD At the critical moment when observers try to time when Venus touches the inside edge of the sun, strange phenomena such as the black drop effect suddenly emerge. This site guides observers in discerning at what instant internal contact occurs; from Steven van Roode. Link added to "Education" page and "Science and Math" page: http://home.hetnet.nl/~smvanroode/venustransit/eng/eng_parallax.html Measure the distance to the sun by knowing only your location (lat/long) and the time(s) of internal contact. That is, "compute the mean equatorial solar parallax online from your own and others' observations of the 2004 transit of Venus, employing *either* Halley's or Delisle's method." This is the easiest method for casual observers to quantify the distance to the sun from their own data. Added to "Black Drop Effect" page: Jay Pasachoff answers question about what an observer could expect of the black drop effect as seen through an H-alpha filter, particularly if there is a prominence on the limb of the sun near Venus at 2nd or 3rd contact.
May 4	Added to "Safety" page: Fine print in big, bold letters addresses the requisite safety warnings. Also added were precautions against using Schmidt-Cassegrain telescopes and large-aperture reflector telescopes to project a solar image, due to potential heat build-up. Link added to "Shop" page: http://www.melbourneobservatory.com/bulletin.htm#sale Reproduction of Gregorian telescope, 1742 atlas, Proctor map, etc.; from Brian Greig. Link added to "Science and Math" page: http://planetarynames.wr.usgs.gov/venus/venuTOC.html The origins of the names of Venus features are listed by the U.S. Geological Survey; site noted by Joan Griffith.
	Link added to "Peace" page: flyer.htm New page shows contents of flyer that accompanies *Eclipse Shades* sent to Iraq and Afghanistan. The text is

May 2	translated into Arabic and Farsi, while maps and tables suggest the zones of visibility and global viewing times. Link added to "Miscellaneous" page: http://image.gsfc.nasa.gov/poetry/venus/News/News.html "Anecdotes and surprising sub-stories" appearing in old newspaper accounts that have been extracted from the ProQuest Historical Newspaper Service; from the NASA IMAGE mission's education and public outreach program (POETRY). Site submitted by Peter Abrahams.
April 28	Changes to "Index" page: index.htm New look on home page includes a few highlighted boxes and more concise descriptions of key web pages. Links added to "Education" page: • http://skyandtelescope.com *Sky & Telescope* magazine features the transit of Venus in a series of articles in the February, April, and June 2004 issues. • *Science News* magazine (Vol. 165, No. 16, 17 April 2004) features the transit of Venus in an article. • http://www.iop.org/EJ/toc/0031-9120/39/3 *Physics Education* (Volume 39, Number 3, May 2004) has several articles about the transit of Venus, including an illustrated teacher's guide by Robin Catchpole, senior astronomer at the Royal Observatory Greenwich, and a paper plate explanation of the frequency of transits. All papers published in the journal are made freely available for 30 days from the date of online publication. • http://www.sciam.com/issue.cfm *Scientific American* magazine (May 2004) features the transit of Venus in an article by Steven J. Dick. • kids.htm The transit of Venus is for kids, too! Enjoy these simple yet fun activities for younger audiences. Links added to "Projects" page: • www.sunderstanding.net Measuring the Universe with a String and a Stone A series of activities allow students to measure the distance to the sun simply, with the lone assumption that Venus is the size of the Earth; from Vivek Monteiro. • http://vamana.space-india.org/ Vamana Project is a 3-phase activity in which students in India measure the radius of the earth using a gnomon; determine the maximum angular separation between the Sun and Venus; and determine the path that Venus takes across the solar disc on June 8th. New "Celebrate" page added: celebrate.htm The former "Road Trip" page has been renamed, and material has been updated and added.
April 19	We invite you to join us as we celebrate the transit of Venus with multiple events in South Bend, Indiana, and surrounding communities. See roadtrip.htm. We are busy preparing for the transit; hence the updates have been fewer lately. Please continue to send your suggested links and we will soon upload them.
April 13	Link added to "Education" page: http://www.astronomy.no/venus080604/webcast.html A live webcast from several sites in Norway will include images with H-alpha filters. The webcast will start before first contact, probably just before 05 UTC, and will last until about half an hour after last contact (around 12 am UTC). Link added to "Miscellaneous" page: http://w1.217.telia.com/~u21702585/venus.htm Watch Venus segue through her phases. A series of photographs features the planet as the transit of Venus nears.
	New "Art Exhibit" page created: art.htm Artists are invited to commemorate the transit of Venus with their handiwork to be exhibited at Glance Eyewear Gallery in South Bend, Indiana, or online at a virtual gallery through this website.

April 12	New "Projects" page created: projects.htm Global observing projects allow students to contribute data from their observing site through the Internet to international pools of data, from which the distance to the sign can be calculated.
April 6	Added to "Peace" page: An excerpt from William Sheehan and John Westfall's *The Transits of Venus* addresses Iraq and the historical significance of Venus in Mesopotamia. Link added to "Education" page: http://www.sil.si.edu/Exhibitions/chasing-venus/education.htm The National Museum of American History features a *Chasing Venus* lecture series. This website from the Smithsonian continues to grow. Link added to "Historical" page: http://rathnasree.htmlplanet.com/Pathani.htm "Samanta Chandrasekhar - a Siddhantic Astronomer from a remote region in Orissa who had perhaps been unaware of theoretical predictions for this transit and observed it through predictions of his own; from N. Rathnasree, Nehru Planetarium, New Delhi.
March 30	Link added to "Education" page: www.sunderstanding.net Measure the universe with a string and a stone. A series of activities allow students to measure the distance to the sun simply, with the lone assumption that Venus is the size of the Earth; from Vivek Monteiro. Links added to "Miscellaneous" page: http://www.sciencefriday.com/pages/2004/Mar/hour1_030504.html A "Science Friday" episode of *Talk of the Nation* on National Public Radio (NPR) features a discussion about the transit of Venus; with Bob Berman. Links added to "Shop" page: Effective April 1, 2004 and for limited time, T-shirts with transit of Venus images are available through e-bay. • http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=3905980039 Doppelmayer • http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=3905980468 Black and white Horrocks stained glass • http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=3905981515 Parallax angle of Venus • http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=3905784785&category=15687&sspagename=STRK%3AMESSE%3AIT&rd=1 Nitzschke's transit at sea Link added to "Safety" page: http://www.astronomyindia.uni.cc/ Sun View goggles are mylar solar filters.
March 24	New "Peace" page added: peace.htm Share the common experience of an uncommon event. You can help the troops stationed overseas and the local people with whom they interact to see the transit of Venus by sending protective eyewear to the region. Rainbow Symphony, in coordination with the Coalition Forces Land Component Command, is sending *Eclipse Shades* to 20 sites in Iraq and Afghanistan. For $1.00 USD you can send a pair of *Eclipse Shades* to the region that has the best viewing circumstances and weather prospects in the world.
	Link added to "Observing" page: http://www.occultations.astronews4you.com/ "Freeware program developed by the Dutch Occultation Association enables you to make accurate local

March 18	predictions for the transit. It also supports both real-time and step-by-step instructions." Submitted by Steven Van Roode. Link added to "Education" page: http://www.venus2004.org "To calculate the astronomical unit, two distant people are needed. These people can exchange their data coming from their observations. Register and contact other passionate people to work together." Submitted by Agnès Bugin. Link added to "Safety" page: http://www.venus2004.org/sinformer/n/news3366.php?langue=2 Safety precautions to observe the transit.
March 14	Link added to "Historical" page: http://skyandtelescope.com/observing/objects/sun/article_1187_1.asp All 147 glass negatives recently discovered in the vault of the Lick Observatory are digitally stitched together into a movie, which "shows Venus's silhouette flickering strangely as it marches across the Sun's face" in 1882. From Anthony Misch and William Sheehan. (Site suggested by Hilmar Duerbeck.) Link added to "Historical" and "Black Drop" pages: http://www.astro.univie.ac.at/~wuchterl/Kuffner/2004/Venustransit/russell_vt.html Illustrations (plates) from the book *Observations of the Transit of Venus, 9th December 1874*, by Henry Chamberlain Russell; from the Institute for Astronomy at the University of Vienna. Activity added to "Kids" page: egg.jpg Make sunny-side-up eggs, with pepper simulating sunspots and a peppercorn being Venus. Link added to "Non-English" page: http://perso.wanadoo.fr/club.astronomie.jura/transit%20Venus.htm French site suggested by Jean-Louis Trudel. Link added to "Miscellaneous" page: • http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/TRANSIT_04/TRANSIT_2004.html Transit of Venus animations as seen from different perspectives, such as from the moon or from the TRACE spacecraft; from Glenn Schneider, Steward Observatory, University of Arizona. • http://skyandtelescope.com/news/article_1204_1.asp The spacecraft Opportunity captures images of the transit of the Martian moon Deimos across the face of the sun; from *Sky & Telescope*. • http://www.lunarplanner.com/HCpages/Venus.html *Cycles of the Heart: The Venus Passage* by Nick Anthony Fiorenza. [Note: While I normally do not include or advocate websites that cite the "psychophysiology of Venus," I include this website for its graphics and animations. --CB]
March 5	Link added to "Education" and "Shop" pages: http://www.amazon.com/exec/obidos/tg/detail/-/1581780230/qid%3D1077148792//ref/104-4875580-8768764 Book: *Hokuloa: The British 1874 Transit of Venus Expedition to Hawai'I*, by Michael Chauvin; ISBN: 1581780230. Can also be ordered by phone (808-848-4135), fax (808-847-8260), or email (press@bishopmuseum.org).
March 2	Added to "PHM What's Up" page: phm/whatsup.htm John Philip Sousa's *Transit of Venus March* will be performed April 21 at the Penn Spring Band Concert, beginning at 7:30 p.m. EST in the PHM Center for Performing Arts (in Mishawaka, IN).
March 1	Added to "Road Trip" page: roadtrip.htm Illustrations show the eastern horizon from sunrise through the fourth contact of the transit of Venus, as seen from South Bend, Indiana.

	Corrections to "Travel" page: Fixed a few broken hot links from thumbnail images and discontinued two dead sites. Thank you, Howard Cohen, for the corrections.
February 26	*New* "Kids Stuff" page: kids.htm The transit of Venus is for kids, too! Enjoy these simple yet fun activities for younger audiences. *New* "Things Round" page: round.htm Round images related to the the transit of Venus are abundant. Consider these images for the stained glass window activity shown on the Kids Stuff page. *New* "Non-English" page: non-english.htm Many non-English websites address the transit of Venus. These links, suggested by international transit of Venus enthusiasts, are only a sampling of the material out there. Please send your suggestions. *Note*: The following links that were already within this website have been re-located to non-english.htm. Therefore, your bookmarks to them may need to be updated. • http://perso.wanadoo.fr/pgj/transit%20080604.htm • http://home.hetnet.nl/~smvanroode/venustransit/parallax2.html • http://home.hetnet.nl/~smvanroode/venustransit/waarnemen3.html • www.venusovergang.be and www.venusovergang2004.be • http://www.sonnenborgh.nl/ Link added to "Non-English" page: http://www.venustransit.at/ "The official Austrian node for the transit event with history, tips, science, and links. It is recommended and supported by the Austrian Society for Astronomy and Astrophysics www.oegaa.at." Submitted by A. Univ. Prof. Dr. Franz Kerschbaum. Link added to "For Teachers" page: phm/teachers.htm Two workshops for teachers and active observers will be on March 27 and April 24, 2004, in Mishawaka, IN. Reservations required; space is limited. Link added to "Education" page: http://www.astronomy.no/venus080604.html Teacher activities address the circumference of earth, parallax, distance to the sun, and Kepler's Laws. Site also lists historic background, visibility times, current research, and more. The organizers in Norway seek other observers for global project. Link added to "Spacecraft" page: http://vestige.lmsal.com/TRACE/POD/images/Mercury2003_combo.gif *TRACE* spacecraft captures image of Mercury transiting sun in 2003. For more transit of Mercury images and movies see http://www.williams.edu/astronomy/eclipse/transits/index.html#mercury.
February 25	Link added to "Observing" page: http://sunearth.gsfc.nasa.gov/eclipse/transit/TV2004.html Pertinent data, such as sunrise times, contact times, and maps of the visibility zone; from Fred Espenak. Link added to "Historical" page: http://www.vt-2004.org/Background/Infol2/EIS-F7.html *The 1882 Transit of Venus as Seen from Chile*; from Hilmar W. Duerbeck. Link added to "Travel" page: http://www.flycapers.com/tours/voyages/2004/2004Transit Travel to Crete to view the 2004 transit of Venus.

	Added to "Black Drop" page: http://www.vt-2004.org/Background/Infol2/EIS-F7.html Belgian astronomers view "black drop" effect from Chile in 1874; from Hilmar W. Duerbeck.
February 24	Link added to "US Naval Observatory" page: http://justfurfun.org/astrohtml/heliostat.htm An original heliostat from the USNO expeditions; in a private collection.
February 22	Links added to "Historical" page: http://cho.uconn.edu/cgi-bin/scandoc.cgi?app=22&folder=2680&doc=1 http://cho.uconn.edu/cgi-bin/scandoc.cgi?app=22&folder=2679&doc=1 Illustrations of the 1882 German expedition to Hartford, Connecticut.
February 21	Link added to "Education" page: http://svs-f.gsfc.nasa.gov/~wfeimer/SEC/Gen_SEC/IP/Transit.mpg *Venus Transit Animation,* from the NASA Goddard Space Flight Center Scientific Visualization Studio. Correction added to "Historical" page: http://home.europa.com/~telscope/ToV.1874.spectr.obs.doc Reports of spectroscopic observations suggest the *sun* was seen in monochromatic light before the 1874 transit.
February 20	Link added to "Education" page: http://connect.larc.nasa.gov/ On March 18, 2004, NASA Connect will broadcast a program with activities about scaling the solar system, the Astronomical Unit (A.U.), and the transit of Venus. Link added to "Historical" page: http://home.europa.com/~telscope/ToV.1874.spectr.obs.doc *Spectroscopic observations of the 1874 transit of Venus in monochromatic light*, from Peter Abrahams, considers reports that Venus was seen in monochromatic light before the 1874 transit, while two observers recorded Venus against the chromosphere during the 1874 transit. [See Feb. 21 entry.]
February 19	Link added to "Education" page: http://planetquest.jpl.nasa.gov/venus_transit.html Broadcast schedule for the March 19 webcast *Venus Transit and the Search for New Worlds*, from JPL.
February 18	Link added to "Education" page: http://www.amazon.com/exec/obidos/tg/detail/-/1581780230/qid%3D1077148792//ref/104-4875580-8768764 Book: *Hokuloa: The British 1874 Transit of Venus Expedition to Hawai'I*, by Michael Chauvin; ISBN: 1581780230.
February 17	Link added to "Observing" page: http://skyandtelescope.com/aboutsky/pressreleases/article_1178_1.asp Witness the celestial dance of the planets leading up to the 2004 transit of Venus. On February 23, 2004, Venus sizzles next to the crescent moon; from *Sky & Telescope*.
February 13	Link added to "Education" page: http://vamana.space-india.org/ Vamana Project is a 3-phase activity in which students in India measure the radius of the earth using a gnomon; determine the maximum angular separation between the Sun and Venus; and determine the path that Venus takes across the solar disc on June 8, 2004.
February 10	Link added to "Historical" page: http://rathnasree.htmlplanet.com/Nursinga%20Rao's%20Observations.htm 1874 Transit Observations of A.V. Narsinga Rao, at Visakhapatnam, India; from N. Rathnasree and Sanat Kumar, Nehru Planetarium, New Delhi.
February 9	Added to "Richard Proctor" page: Eight images from Proctor's *The Sun: Ruler, Fire, Light, and Life of the Planetary System*,1871.
February 6	New "Shop" page added: Lists items for sale related to the transit of Venus, including a DVD and CDs; clothing; souvenirs; music; travel and tours; books and publications; and solar observing equipment. New "Transit of Venus, June 5-6, *2012*" page added:

6	Begins preparations for the second and final transit of the twenty first century. Added to "Quotes" page: Richard Proctor seeks approval of 21st century astronomers for the anxiety and zeal of 19th century colleagues.
February 5	Added to "PHM Planetarium & Air/Space Museum" home page: Transit of Venus workshops for educators and participants of global observing projects will be held March 27 and April 24, 2004, from 9:00 a.m. until noon. Details will follow. (This notice also appears on the "For Teachers" page.) Added to "PHM Planetarium & Air/Space Museum-*Shuttle Crews*" page: "The walls of the PHM Planetarium & Air/Space Museum are adorned with the official crew portraits from every space shuttle mission. These oak-framed photographs are signed by every astronaut to have flown on a shuttle." Correction on "Safety" page: Link and thumbnail to the Venuscope now should take you to the multi-language home page at http://www.venus2004.net/. SODAP-SOBOMEX- Department Sky & Space added transit schedules for Canada and USA.
February 4	Links added to "Historical" page: • http://www.ras.org.uk/html/library/vtransit.html Royal Astronomical Society Library features images from 19th century transits. • harpers-whole.jpg Cover of *Harper's Weekly* depicts children watching the transit by staring at the sun and by viewing the sun through smoked glass--both very dangerous practices. Links added to or corrected on the "Travel" page: • http://www.embah.com/desert_safaris_the_transit_of_venus_in_sinai.htm Travel to Sinai to view the 2004 transit of Venus. • http://www.eclipsetours.com/transit1.html Travel to the island of Mauritius to view the 2004 transit of Venus. Correction on "Site Map" page: Link from Travel & Tours now takes you to travel.htm.
February 3	Links added to "Miscellaneous" page: • http://sunearth.gsfc.nasa.gov/sunearthday/2004/vt_bookmark_ban_wall.htm Download posters, wallpaper, and bookmarks; from NASA. • http://www.transit-of-venus.org.uk/downloads.htm Download poster and wallpaper; from University of Central Lancashire. Link added to "Science & Math" page: http://www.transit-of-venus.org.uk/science.htm Using parallax to measure distance; from University of Central Lancashire. Correction added to "jars-scopes.doc": Assertion that 2004 transit is first transit visible in chromosphere (excluding the halo) fails to acknowledge the spectroscopic views of Venus in the chromosphere during 19th century transits, such as by George Tupman in 1874. See *The Transits of Venus* by William Sheehan and John Westfall, Prometheus Books. Correction added to "Historical" page: Image to which the "doppel.jpg" thumbnail links is now larger image.
January 23	Link added to "Education" page: New "Simulate" page suggests simple activities to simulate a transit of Venus, such as using a small ball, a wire, and a picture on your computer monitor.
	Link added to "Spacecraft" page: http://sohowww.nascom.nasa.gov/hotshots/

January 22	While Stardust tastes the ice, Spirit roves, and Cassini approaches a slice of Saturn rings, SOHO takes the pulse of the sun. See what the SOHO team is thinking and how they respond to satellite challenges. 04-01-22 Correction to to "Education" page: http://www.spaceweather.com URL updated for SpaceWeather.com.. Current solar weather with "science news and information about the Sun-Earth environment." Correction to "Miscellaneous" page: statue_print.jpg Corrected link now takes you to the print entitled *Transit of Venus* of museum workmen moving a statue of Venus.
January 21	Correction to to "Education" page: http://www.sil.si.edu/Exhibitions/upcoming.htm Planned exhibit at Smithsonian Institution Libraries entitled *Chasing Venus: Observing the Transits of Venus, 1631-2004*" will be on the corrected dates of March 24, 2004-April 3, 2005.
January 19	Link added to "Issues" page: jars-scopes.doc *The Transit of Venus After Baby Food Jars and Gun Scopes*, an admonition for astronomy educators in general and planetarians in particular to embrace and advocate the 2004 transit of Venus as a global education opportunity; from Chuck Bueter. Links added to "Black Drop" page: • http://rathnasree.htmlplanet.com/blackdrop_effect.htm Ongoing discussion about the black drop effect; from Nehru Planetarium, New Delhi. • http://analyzer.depaul.edu/paperplate/Transit%20of%20Venus/Internet%20caveat.htm Caveat about believing everything you see on the Internet (*including here*). • bde-honolulu.gif Illustration of internal contact, 1874 December 8, Honolulu; Tupman 6-inch refractor. • bde-artificial.gif "Front elevation of the Model artificially representing the circumstances of the Transit of Venus when place a the distance of 400 feet..."
January 18	Link added to "Historic" page: http://www.mariner.org/age/cook.html *Venus Fort, Erected by the Endeavour's People to secure themselves during the Observation of the Transit of Venus, at Otaheite*. Links added to "Education" page: • http://photojournal.jpl.nasa.gov/catalog/PIA03151 *Venus Hemispherical Globes*; several mosaics in a projection portray the entire surface of Venus that folds into a 12-inch globe; from the U.S. Geological Survey. • http://solar-center.stanford.edu/activities.html Stanford Solar Center offers "exciting activities, images, interactive tools, text, and other resources to let you research our special star -- the Sun." • http://www.amazon.com/exec/obidos/tg/stores/detail/-/books/0802713513/104-4875580-8768764 Book: *Measuring the Universe: Our Historic Quest to Chart the Horizons of Space and Time*; by Kitty Ferguson • http://www.phys.uu.nl/~vgent/venus/venustransitbib.htm Extensive bibliography of original sources relating to transits of Venus, with links to many of the original publications; from R.H. van Gent. (Link also exists on "Historic" page.) Link added to "Spacecraft" page: http://exoplanets.org/ California & Carnegie Planet Search keeps you current on exo-planet research and almanacs. Links added to "Misc" page:

	• http://members.shaw.ca/theatretart/tofv.html Theatre scenes from 2003 presentation of Maureen Hunter's play in Vancouver. • http://www.sonnenborgh.nl/ Exhibit at Museum Sterrenwacht Sonnenborgh features photos and instruments from the 19th century transit expeditions from the Netherlands. Link added to "Travel" page: http://www.mttam.net/venus.html Raffle for trip to view the 2004 transit of Venus; May 22 drawing. Link added to "Safety" page: http://www.solarscope.org/solarscopeenglish.htm A Solarscope is commercially available from Light Tec Optical Instruments.
January 17	Additions and changes to three related files: • nd1800s.htm Switched content of *Notre Dame and the 19th Century Transits of Venus* to this new file name. Article (initially uploaded December 21, 2003) details the efforts to witness the 1882 transit of Venus using the Napoleon III telescope; from Robert Havlik. • napoleon3.htm Replaced former content with this article that details *University of Notre Dame and the Napoleon III Telescope;* from Robert Havlik. • nd.htm Altered descriptions to reflect two items above.
January 16	Link added to "Music" page: http://analyzer.depaul.edu/paperplate/transit.htm The soundtrack to the *Transit of Venus* program is available for educators; you can also view links to the audio CD contents and an order form. Link corrected on "Spacecraft" page: http://www.space.com/searchforlife/seti_doyle_worlds_010809.html SETI document describes detecting other worlds using the photometric transit or 'wink' method; by Dr. Laurance Doyle. Links added to "Misc." page: • statue_print.jpg Auction item: photogravure plate entitled "The Transit of Venus," circa 1888; artist unknown; printed by the Typographic Etching Company. • Novel: *Transit of Venus: Travels in the Pacific*; by Julian Evans. Link added to "Historic" page: http://www.th.physik.uni-frankfurt.de/~jr/gif/stamps/s_hell.jpg A good image of a stamp of Maximilian Hell, S.J. Links added to "Education" page: • Labels for the DVD, data CD, and audio CD for the *Transit of Venus* program are added. • http://www.imcce.fr/vt2004/en/fiches_eng.html ESO education sheets for teachers. • http://www.imcce.fr/vt2004/en/cdrom_eng.html CD-ROM of historical documents forthcoming from ESO. • http://www.amazon.com/exec/obidos/tg/detail/-/1863683941/104-4875580-8768764 Book: *Venus in Transit: Australia's Women Travellers 1788-1930* by Douglas R. Sellick. • Book: *The Transits of Venus*; by William Sheehan and John Edward Westfall

	Link added to "Safety" page: http://www.jotabout.com/portuesi/astro/solar_filter.html Build a solar filter for your telescope; from Michael Portuesi.
January 11	Links added to "Safety" page: • http://www.rainbowsymphony.com/soleclipse.html Solar shades are commercially available through Rainbow Symphony. • http://www.venuscope.com/ The Venuscope is commercially available from Sodap Sobomex. • http://www.transitofvenus.org/tvscreen.htm *Must-See TV (Transit Venus) Screen* is a rear-projection device made at 2003 GLPA Conference workshop.
January 10	Links added to "Historical" page: • ferguson.htm James Ferguson authored *Astronomy Explained Upon Sir Isaac Newton's Principles and Made Easy to Those Who Have Not Studied Mathematics*. Posted are excerpted images. • victoria.jpg Sketch from the May 8, 1875, issue of *The Graphic:* "The Recent Transit of Venus--Preparing for Work at an Australian Bush Station." Addition to napoleon3.htm: Images and background of the Napoleon III telescope at University of Notre Dame.
January 6	Addition to napoleon3.htm: End Notes for *University of Notre Dame and the 1874 and 1882 Transits of Venus*, by Robert Havlik. Included are newspaper accounts describing the 19th century transit of Venus, their significance, and the public and professional reaction to them.
January 5	Link copied to "Historical" and "Travel" pages: hoole.htm Destinations in England related to the transit of Venus, with emphasis on Jeremiah Horrocks' church and Horrocks memorials.
January 4	Link added to "Historical" page: http://www.hoolecechurch.org.uk/main.htm The *Hoole C.E. Church* website features Jeremiah Horrocks, St. Michael Church, and the events commemorating and celebrating the transit. Includes image of new stained glass window for Horrock's church.
January 3	Link added to "Science and Math" page: http://www.glenn.freehomepage.com/writings/Pentacle/ "Pi, Phi, and the Pentacle" features the five-point pattern derived from the aligning orbits of Venus and earth; from Glenn R. Smith.
January 2	Happy Transit of Venus Year. Link added to "Education" page: http://skyandtelescope.com *Sky & Telescope* magazine features the transit of Venus in a series of articles, beginning with the February 2004 issue. Links added to the "Travel" page: • http://www.spearstravel.com/venus.htm Travel to Greece to view the 2004 transit of Venus with Fred Espenak. • http://www.mythictravels.com/Tours/Venus_Transit/greeceitinerary.html Travel to Greece to view the 2004 transit of Venus. • http://www.syz.com/rasc/venus.htm Travel to Egypt to view the 2004 transit of Venus with the Royal Astronomical Society of Canada, Calgary Centre.

Year 2003 (below)

December 27	Link added to "Education" page and added to "Science and Math" page: http://home.hetnet.nl/~smvanroode/venustransit/eng/eng_parallax.html Compute the mean equatorial solar parallax online from your own and others' observations of the 2004 transit of Venus, employing Halley's method; from Steven M. van Roode. (Dutch version added to "Miscellaneous" page.) Links added to "Historical" page: • http://home.hetnet.nl/~smvanroode/venustransit/eng/planmanhis.html "Anders Planman (1724–1803) was an outstanding Swedish astronomer and professor of natural philosophy in the University of Åbo (Turku, Finland), primarily engaged with the problem of the solar parallax. He devoted numerous articles on the reduction of various eighteenth century observations of the transits of Venus, among which were his own – Planman observed both 1761 and 1769 transits from the city of Cajaneborg (Kajaani, Finland);" from Steven M. van Roode. • http://home.hetnet.nl/~smvanroode/venustransit/eng/ballhis.html Irish astronomer Sir Robwert Stawell Ball's observation of the 1882 transit of Venus at Dunsink; from Steven M. van Roode. • http://www.dgcch.unam.mx/coordinacion_bibliotecas/frame2/1874.htm Book of Marco Moreno Corral about the Mexican expedition to observe the 1874 transit of Venus at Japan; from the National Institute of Astronomy at UNAM, Mexico; (in Spanish). Link added to "Observing" page: http://www.nauticoartiglio.lu.it/almanacco/trans_venus_en.htm Compute the four times when Venus contacts the edge of the sun for the 2004 transit of Venus; local circumstances are shown for any given latitude and longitude; from Franco Martinelli. (Dutch version added to "Miscellaneous" page.) http://home.hetnet.nl/~smvanroode/venustransit/eng/eng_parallax.html Compute the mean equatorial solar parallax online from your own and others' observations of the 2004 transit of Venus, employing Halley's method; courtesy of Steven M. van Roode.
December 22	Updated "Links" page with no thumbnails. Note: The "Links" page is not regularly maintained and lacks resources found within the rest of this website. Therefore, we recommend other websites link to the home page at www.transitofvenus.org. Link added to "Miscellaneous" page: http://perso.wanadoo.fr/pgj/transit%20080604.htm PGJ - Astronomie : Passage de Venus devant le Soleil le 08 Juin 2004 (in French). Note added to "'Black Drop' Effect" page: "Bradley Schaefer reviews the controversy ...[and] concludes that the phenomenon is not caused by diffraction, illusion or atmospheric refraction, but by terrestrial atmospheric smearing that blurs the image."
December 21	New "University of Notre Dame and the Transit of Venus" page added: • sunriseTouchdownJ.jpg Image of "*Touchdown Jesus*" *Sunrise* on the campus of University of Notre Dame, June 9, 2003, at 6:00 a.m. EST (near time of third contact in 2004); • napoleon3.htm When the 1884 transit of Venus approached, the University of Notre Dame was equipped with its telescope given by Napoleon III. Robert J. Havlik, Emeritus Librarian, relates the outcome of the efforts by professors and students.
	Links added to "Historical" page:

December 14	• www.rasc.ca/historical Eighteenth and 19th century transits from the Canadian perspective; from Peter Broughton and the Royal Astronomical Society of Canada (RASC). • beaver_mag.jpg *The Transit of Venus: Stargazing in 1769*; from The Beaver--Canada's History Magazine, April-May 2003. Link added to "Education" page: http://groups.yahoo.com/group/VenusTransit The Nehru Planetarium, New Delhi, India, has "started a discussion group to plan for exchanges of information and observations of the upcoming Transit of Venus." Quote added to Quotes page: Peter Broughton asks how well we will fare compared to our forebears in advocating and observing the transit of Venus. Link added to "Observing" page: http://www.nauticom.net/www/planet/files/VenusTransit.html Cruise the Mediterranean to view the transit of Venus. New "Travel and Tours" page created: New page (formerly a subset of the Observing page) lists opportunities to travel or join tours to witness the transit from around the world. We list these sites only as a courtesy and do not endorse any particular tour or company.
December 10	Links added to "Education" page: http://www.sil.si.edu/exhibitions/chasing-venus/teachers/ "*Chasing Venus*" *Teacher Resources* from Smithsonian Institution Libraries includes "exercises and lesson plans designed to accompany and enrich the study and discussion of the June 2004 Transit of Venus." Eighteen activities engage grades K-12 in multiple subject areas, including science, math, geography, art measurement, creative writing, history, astronomy, English, spelling, and media. http://eclipse.astroinfo.org/transit/venus/project2004/index.html ProjectVenus 2004 is "an observational project of amateur astronomers to determine the scale of the solar system with the aid of the Venus transit in 2004. Groups investigate the historical calculations and observations, set up new procedures, prepare the observation and carry out the evaluation." Link added to "Science and Math" page: http://eclipse.astroinfo.org/transit/venus/project2004/pub/Blatter.etal.eng.200306.pdf *Venustransit 2004: Calculation of the Solar Parallax from Observations* by Heinz Blatter. Detailed math "gives an overview of the geometry and temporal patterns of transits, a rough estimate of the solar parallax and the corresponding error estimate. The possible and necessary corrections due to the rotation of the Earth, the eccentricities of the orbits of Venus and Earth and the inclination of the orbit of Venus are given as well." Link added to "Spacecraft" page: http://planetquest.jpl.nasa.gov/news/lbti_update.html Large Binocular Telescope (LBT) "will enable astronomers to carry out a broad range of unprecedented astronomical observations, including some of the first direct observations of giant planets around other stars."
December 8	Link added to "Observing" page: http://iss-transit.sourceforge.net/IssVenusTransit.html Tom Fly addresses the challenges of predicting where the International Space Station (ISS) will be during the transit of Venus, and suggests the possibility of seeing ISS transit the sun concurrently with Venus. Correction added to "Historical" page: Additional information listed for link to the design of Janssen's "photographic revolver," as illustrated and described in NASA Astrophysics Data System (ADS). There are two articles, one after the other, as noted by Peter Abrahams:

De la Rue, Warren. *On a Piece of Apparatus for carrying out M. Janssen's Method of Time-Photographic Observations of the Transit of Venus*. M.N.R.A.S. 34 (May 1874) 347-353.
Capello, J. *On an Apparatus Designed for the Photographic Record of the Transit of Venus*. M.N.R.A.S. 34 (May 1874) 354-356 (translation of letter to De la Rue).

Link added to Education page:
http://www.transit-of-venus.org.uk/conference/index.html
International Astronomical Union announces IAU Colloquium 196, *Transits of Venus: New Views of the Solar System and Galaxy,* 7-11 June 2004, University of Central Lancashire, UK.

December 6

Link added to Education page:

http://www.astroleague.org/al/astroday/astroday.html
The Astronomical League celebrates the transit of Venus as its theme for Astronomy Day on April 24, 2004. Hundreds of sites "host special events and activities to acquaint their population with local astronomical resources and facilities."

Links added to "Science and Math" page:

- http://www.seds.org/pub/info/newsletters/ejasa/1993/jasa9302.txt
- http://www.seds.org/pub/info/newsletters/ejasa/1993/jasa9303.txt
- http://www.seds.org/pub/info/newsletters/ejasa/1993/jasa9304.txt
  Three-part series on the Soviet and American exploration of Venus, appearing in the electronic Journal of the Astronomical Society of the Atlantic; by Larry Klaes.

Links updated on the "Historical" page, with thanks to Peter Abrahams for noting the broken links and providing current URLs:

"Transits, Travels and Tribulations," a five part series (three are online) by J. Donald Fernie for *American Scientist*:

- (Not online) Part II: the British expeditions to observe the 1761 transit--that of Mason and Dixon to South Africa, and Winthrop's Harvard expedition to Newfoundland. In addition, the misfortunes of a French expedition, that of Pingré to the island of Rodrigues in the Indian Ocean.
- http://www.americanscientist.org/template/AssetDetail/assetid/28549
  Transits, Travels and Tribulations, III March-April 1998
  Part III: the two other French expeditions of 1761, that of Jean Chappe d'Auteroche to Siberia, and of Guillaume-Joseph-Hyacinthe-Jean-Baptiste Le Gentil de la Galaisière to India.
- http://www.americanscientist.org/template/AssetDetail/assetid/27742
  Transits, Travels and Tribulations, IV September-October 1998
  Part IV: two of the other 1769 expeditions-- Jean Chappe d'Autoroche to Baja California, and William Wales to Fort Prince of Wales, a Hudson's Bay Company fur-trading post in northern Canada.
- http://www.americanscientist.org/template/AssetDetail/assetid/26610
  Transits, Travels and Tribulations, V March-April 1999
  Part V: the voyage of Captain James Cook and results of the expeditions.

Dead link removed from "Historical" page,

http://www-sll.stanford.edu/projects/tomprof/newtomprof/postings/68.html
The editors of *Astronomy* magazine (October 1999) list the 25 greatest astronomical findings of all time, including the suggestion that Venus has an atmosphere, as observed during the 1761 transit of Venus.

Several major items debut today, even though some of them are incomplete.

- Site Map is an expanded version of our home page, which lists website subjects with thumbnail images. The new Site Map navigation button now appears on the left column.
- Road Trip invites you to visit South Bend, Indiana, to view the transit of Venus above a low horizon. Local transit of Venus celebrations will include exhibits of artifacts and new commemorative artwork; planetarium programs; live viewing of the transit; and a webcast. It's a party. Details of events will be

November 26	posted as they develop. • Collection shows some of the artifacts and artwork (for now, with little explanation) that will be displayed as part of the transit of Venus celebrations in South Bend, IN, and neighboring communities. • Gallery shows a few pictures of preparations for the 2004 transit of Venus. • Issues recognizes that although the transit of Venus expeditions are celebrated accomplishments, they also had their own impact on different cultures. Consider these social issues related to the transit of Venus. Link added to "Observing" page: http://www.betchartexpeditions.com/europe_lake_baikal_tov.htm Travel to Siberia and Lake Baikal to view the transit of Venus. The same company is also leading a tour in conjunction with The Planetary Society to Scotland & the Faroes.
November 23	Link added to Education page: www.venusovergang.be and www.venusovergang2004.be Transit of Venus websites for the Dutch speaking communities of Belgium (Flanders) and the Netherlands.
November 14	Link added to Science and Math page: • blackdrop.htm The "Black Drop" Effect addresses in detail the phenomenon at internal contact which has confounded astronomers for years. Link added to Education page: • http://skolor.nacka.se/samskolan/eaae/summerschools/TOV0.html "How to measure the Earth-Sun distance by studying the transit of Venus;" from the European Association for Astronomy Education (EAAE). • http://www.rsnz.govt.nz/news/venus/ "The Royal Society of New Zealand...will send a party of nine students and three teachers to observe the 2004 transit of Venus. To win places on the expedition to Britain, teams...will be asked to produce a video and supporting material which may be viewed on the web." • http://www.nmm.ac.uk/site/request/setTemplate:singlecontent/contentTypeA/conMuseumEvent/contentId/657/navId/00500200b National Maritime Museum seminar entitled "Venus Observed: the Transit of Venus in History" will examine the historical and scientific significance of the transit of Venus and ask how it has contributed to our understanding of science. • http://analyzer.depaul.edu/NASABroker/GLPA/PLATO%20Grants%202002.htm A PLATO grant is available to members of the Great Lakes Planetarium Association, for which we encourage GLPA members apply to advocate transit of Venus educational opportunities. Link added to "Spacecraft and Extra-Solar Planets" page: • http://www.space.com/searchforlife/seti_transits_030904.html "Solar Transits: Tools of Discovery" article by Edna DeVore describes how transits are significant both as historical events and as cutting-edge research tools. Link added to "Black Drop" Effect page: http://arxiv.org/pdf/astro-ph/0310379. Report "separates the primary contributors to [the "Black Drop" Effect], solar limb darkening and broadening due to the instrumental point spread function...for the 1999 transit of Mercury."
November 11	The new "Black Drop" Effect page shows examples of the phenomenon that ultimately became the limiting factor in timing a transit of Venus to measure the distance from earth to the sun. Also listed are technical papers that suggest the cause of the "black drop" effect. Added to "Spacecraft and Extra-Solar Planets" page: Astronomers from the SOHO mission suggest what we can expect from the spacecraft and how the transit of Venus will be used to calibrate satellite instruments.

	Link corrected on "Historical" page: http://dlib.stanford.edu:6520/text1/dd-ill/transit-memoir.pdf Memoir of the life and labours of Jeremiah Horrocks, by Rev. Arundell Blount Whatton; and the entire *The Transit of Venus Over the Sun* by Jeremiah Horrocks; 1639 (10.6 MB). Thank you, Peter Abrahams, for alerting us to the erroneous link.
November 6	Link added to Education page: http://sunearth.gsfc.nasa.gov/sunearthday/2004/vt_kinder_ownstar.htm *Our Very Own Star: The Sun*, an animated story for children, accompanied by coloring sheets; in English and Spanish.
November 5	Link added to Education page: • http://analyzer.depaul.edu/paperplate/transit.htm A collection of resources, including a DVD program and a CD of individual jpeg images related to the transit of Venus, will be shipped free to members of the Great Lakes Planetarium Association in late-November. Non-GLPA members may order the same materials for a nominal cost (about $15.00) after December 1, 2003. New Thomas Paine page added. In his introduction to theories on the plurality of worlds, Paine describes the planetary system, as known at the time, in terms of Kepler's Laws. He then uses the observation of the transit of Venus as a practical application of the laws; contributed by Robert J. Havlik.
November 4	Links added to Education page: • An extensive collection of lesson plans and featured activities from the Sun-Earth Connection Education Forum. • http://planetquest.jpl.nasa.gov/ Live Broadcast / Webcast: Venus and the Search for Habitable Planets; Friday, March 19, 2004, 1-2 p.m. ET. This interactive discussion will focus on what the Venus Transit can teach us about the search for planets beyond our solar system • http://www.exploratorium.edu/webcasts/ "Live Webcast: The Transit of Venus! Tuesday, June 8, 2004. Travel high in the mountains above Granada, Spain to the Sierra Nevada Observatory for a clear and unobstructed view of this amazing and rare event. • http://sunearth.gsfc.nasa.gov/sunearthday/2004/vt_edu2004_ten.htm Ten Things You Thought You Knew About Sun-Earth Science. A list of common and uncommon, famous and infamous misconceptions about solar-terrestrial physics. Links added to Transit of Venus Music page: • http://www.astrocappella.com/activities/ Lesson plan to accompany the song *Dance of the Planets by* AstroCappella. High school students investigate the dimming caused by a transit; determine a planet's radius and orbital distance from transit data; and compare results of the extrasolar planetary system with our solar system; (PDF file). • http://solar-center.stanford.edu/singing/singing.html Recordings of acoustical pressure waves (much like a bell) in the sun by SOHO spacecraft yield information about how the structure of the sun's interior shapes its surface. • http://www.noao.edu/education/ighelio/solar_music.html Lesson plan on *Solar Music- Helioseismology* encourages students to listen to the Sun's heartbeat to learn about the inside of the Sun.
November 3	Link added to Education page: • ottewell.jpg Cover art for the 2004 Astronomical Calendar depicts James Cook observing the transit of Venus. Author/artist Guy Ottewell features the transit of Venus on pages 46-48 in his annual publication on

	observational astronomy.
November 1	New Transit of Venus Music page featuring John Philip Sousa is created to recognize musical contributions to the topic. Includes October 31, 2003, article in the Washington Post about Sousa's re-orchestrated *Transit of Venus March*. Link added to Observing page: http://www.astronomyvacations.com/Venus.html Travel to the Entabeni Game Preserve north of Johannesburg, South Africa, to view the transit of Venus. Link added to "Historical" page: http://www.melbourneobservatory.com Transit of Venus site emphasizing the 18th and 19th century transits, including Joseph Banks, transit observations from Melbourne, and Jules Janssen's photographic revolver.
October 27	The transit of Venus is a recurring topic at the 2003 Annual Conference of the Great Lakes Planetarium Association (GLPA). We anticipate and welcome more transit-related images and text from that conference from this gathering of astronomy enthusiasts. Added to Miscellaneous page: John Philip Sousa's *Transit of Venus March* band arrangement is available for $25.00 (plus UPS shipping) through The Detroit Concert Band, Inc. at (480) 948-9870. You may order a reprint of each published part on 8.5 x 11-inch pages and reproduce as many copies for your own use as necessary.
October 17	Link added to Education page: • http://www.noao.edu/education/ighelio/solar_music.html Lesson plan on *Solar Music- Helioseismology* encourages students to listen to the Sun's heartbeat to learn about the inside of the Sun. Link added to "Spacecraft and Extra-Solar Planets" page: • http://solar-center.stanford.edu/singing/singing.html *The Singing Sun*, a recording of acoustical pressure waves in the Sun made by carefully tracking movements on the Sun's surface. Link added to Safety! page: • http://www.rollanet.org/~rlions/ldog/ For observers who refuse to view the sun safely--Leader Dogs for the Blind in Rochester, Michigan. Links added to Miscellaneous page: • http://sio.midco.net/dansmapstamps/jamescook.htm Collection of stamps pertaining to Captain James Cook, including some specific to the 1769 transit of Venus. • stereocard.jpg Stereoscope card of the transit of Venus expedition to Chatham Island; from the American Views "Popular Series."
October 15	Link added to Observing page: • http://svs-f.gsfc.nasa.gov/~wfeimer/SEC/Gen_SEC/IP/Venustrans.tif (9 MB) Graphic clearly shows the duration of the transit's visibility across the United States; from NASA - Goddard Space Flight Center Scientific Visualization Studio.
October 14	Link added to Observing page: http://www.explorers.co.uk/astro/2004_Transit_of_Venus.htm Travel to the Sinai Peninsula in Egypt to view the transit of Venus.

	Travel opportunities are now listed together on the bottom of the Observing page.
September 24	Links added to "Spacecraft and Extra-Solar Planets" page: • http://soho.nascom.nasa.gov/pickoftheweek/old/SunAsArt/ *The Sun as Art* captures the majesty, the mystery, and the power of the sun. http://soho.nascom.nasa.gov/explore/Sun_Obs.html *How Do We Observe the Sun?* shows how data helps account for the things we do not understand. Links added to "Historical" page: • Rare, unpublished report details the results of each party in the American Transit of Venus Expeditions of 1874 and 1882; from the rare book collection of the U.S. Naval Observatory. • http://www.transit-of-venus.org.uk/conference/history.html Extensive history of Jeremiah Horrocks and his observation of the 1639 transit; includes excellent background information, local knowledge, images, and references. • The design of Janssen's "photographic revolver" is illustrated and described; from NASA Astrophysics Data System (ADS). • http://www.arm.ac.uk/history/richobs.html Image of Richmond Observatory, "built by George III, specifically to observe the Transit of Venus in 1769;" from the Armagh Observatory. • http://adsbit.harvard.edu/cgi-bin/nph-iarticle_query?bibcode=1882MNRAS..43...41J *On the Probable Assyrian Transit of Venus* by Rev. S.J. Johnson (1882) suggests an Assyrian tablet may refer to an ancient recorded transit, as mentioned in a previous journal. • Glass Negative of the Transit of Venus, 1874; from the collection of the National Maritime Museum. Links added to Education page: • http://www.transit-of-venus.org.uk/conference/index.html IAU Colloquium 196 entitled *Transits of Venus: New Views of the Solar System and Galaxy* will be held in Preston, Lancashire, UK, 7-11 June 2004. • Science Group of India suggests it will broadcast on the Internet live images of transit of Venus on 2004 June 8. Link added to to "Science and Math" page: • http://www.solarphysics.kva.se/ Institute for Solar Physics captures the 2003 May 7 transit of Mercury. Link added to our US Naval Observatory page: • Artifacts used in measuring transits; from USNO exhibits • http://www.europa.com/~telscope/solartele.txt/ Stereoscope images related to the transit of Venus.
September 17	Correction to "Science and Math" page: Link to ALPO corrected to http://www.lpl.arizona.edu/~rhill/alpo/transit.html. Thank you, Steven M. van Roode, for noting the error.
September 15	Link added to "Historical" page: http://www.barkendeavour.com.au/ HM Bark Endeavour Foundation actively sails and exhibits a replica of the vessel James Cook commanded during the 1769 expedition to Tahiti.
September 12	A collection of photographs from the US Naval Observatory depict life during their 19th century expeditions to time a transit of Venus.
September 11	The "What's New?" navigation button gets boosted higher on the navigation bar on the left margin.
	http://sunearth.gsfc.nasa.gov/sunearthday/2004/index_vthome.htm The new website from the Sun-Earth Connection Education Forum debuts as a must-see resource. Links added to Education page:

September 2	• http://www.astro.psu.edu/users/maw/transit.ppt Mike Weinstein provides an MSPowerPoint presentation on the transit of Venus, with a particular slant for Chicago observers. Presentation includes helpful animations and cites all references for images. • http://sunearth.gsfc.nasa.gov/sunearthday/2004/index_vthome.htm The new website from the Sun-Earth Connection Education Forum. Links added to Observing page: • http://ds.dial.pipex.com/eclipse99page/venus.htm View the transit from the Channel Island of Guernsey. • hoole.htm List of transit-related destinations in England for the tourist. • http://sunearth.gsfc.nasa.gov/sunearthday/2004/index_vthome.htm The new website from the Sun-Earth Connection Education Forum.
August 26	Added: • http://www.transitofvenus.org/phm/index.htm The *PHM Planetarium & Air/Space Museum* in northern Indiana actively supports transit of Venus programming. Currently it is producing a planetarium program and multi-user resources (eventually to reside at http://analyzer.depaul.edu/paperplate/transit.htm) that are scheduled to debut at the GLPA Annual Conference in late October 2003. We at transitofvenus.org are now piggybacking a draft of the unofficial *PHM Planetarium & Air/Space Museum* website here on our pages. • Three images of maps from an 1872 Richard Proctor book are added to the proctor.htm page.
August 25	Links added to Miscellaneous page: • science.nasa.gov/spaceweather/swpod2003/22aug03/Stalder1.avi Video shows the International Space Station transiting the sun; from spaceweather.com. • http://iss-transit.sourceforge.net/ Thomas Fly website offers a way for observers to predict when the International Space Station (ISS) will pass in front of the sun or moon from their respective observing sites. An alert service notifies users of predicted ISS transits. • quotes.htm A rough draft of quotes culled from as-of-yet unattributed sources. The quotes relate to transits in general and the transit of Venus in particular. Correction made to "Science & Math" page: http://home.hetnet.nl/~smvanroode/venustransit/ball.pdf Detailed math excerpted from Robert Stawell Ball's *Treatise on Spherical Astronomy*, 1908, addresses the conditions under which a transit takes place; variations of the sun's path as seen from different points on the earth; and both Halley's and De Lisle's methods for applying a transit of Venus to determine the Astronomical Unit. Thank you, Steven M. van Roode, for pointing out the shortcoming and for providing the resource.
August 23	Correction added to FAQ page: The time cited for the end of the transit was incorrect. It suggested the transit ends at internal contact, when the disk of Venus is wholly within the sun and touching the edge of the sun. Instead, it takes about an additional 20 minutes for Venus to move across the limb of the sun. Even though the transit is over around 7:25 a.m. EDT, the SOHO spacecraft will be able to track the planet somewhat outside the solar disk.
August 22	Link added to Safety! page: BinoMite Solar Binoculars from Coronado are 10x25 roof-prism binoculars with white-light solar filters.
	Link added to Education page: • The Sun-Earth Connection Education Forum releases an early version of its Sun-Earth Day website at http://sunearth.gsfc.nasa.gov/sunearthday/2004/index_vt.htm prior to the official website debut on September 1, 2003.

August 18	Links added to Safety! page: • Love is blind. Engravings from 1883 *Harper's Weekly* depict dangerous practices for viewing the sun; courtesy of Sun-Earth Connection Education Forum Venus Transit Background Reading- Art at http://sunearth.gsfc.nasa.gov/sunearthday/2004/vtbackart.htm. • Instructions for pinhole projectors are at http://www.exploratorium.edu/eclipse/how.html; from the Exploratorium. Links added to Observing page: • http://www.lunar-occultations.com/iota/2004venus/2004venus.htm General information, transit circumstances, predictions for major world cities, tours, maps of the path of the transit; from the International Occultation Timing Association (IOTA). • http://www.eclipsetours.com/transit1.html Travel to the island of Mauritius to view the 2004 transit of Venus. • http://www.astronomicaltours.net/ Travel to Egypt or the Greek Isles to view the transit of Venus. • http://sciencecenter.net/twilighttours/200406/index.htm Travel to Africa to view the transit of Venus. Links added to Miscellaneous page: • Sheet music from John Philip Sousa's march entitled Transit of Venus; image from Sun-Earth Connection Education Forum Venus Transit Background Reading- Music and Literature at http://sunearth.gsfc.nasa.gov/sunearthday/2004/vtbackmusic.htm.
August 10	Transit Geometry Calculations added to "Science & Math" page, courtesy of Sten Odenwald and Lou Mayo. Corrections made on "Historical" page: Several items from Stanford University Libraries & Academic Information Resources had not been linked correctly. Materials were originally posted below and on the "Historical" page on June 17, 2003. Thank you, David Sellers. The Griffith Observatory kindly selected this website to receive the Griffith Observatory Star Award for the week of August 3 - 9 for excellence in promoting astronomy to the public through the World Wide Web. Links added to "Miscellaneous" page: Stereoscope card published by American Views purportedly shows the cabin of the wrecked crew of the *Alabama*, Chatham Island expedition. New Zealand stamp sheet commemorating 1969 Cook Voyages Bicentenary features the transit of Venus. Links added to "Observing" page: *Sky & Telescope* magazine announces two tours to view the 2004 transit of Venus: http://www.tq-international.com/Rome/RomeHome.htm Rome and the Vatican Observatory http://www.travelquestinternational.com/VeniceGreekIslefeedback.html Venice and the Greek Isles
July 17	Link repeated on "Historical" page: http://www.dsellers.demon.co.uk/venus/ven_ch8.htm Edmond Halley's admonition of 1716, in which he proposes a method to determine solar parallax and measure the distance to the sun by timing a transit of Venus from multiple sites across the globe.
July 16	Links added to "Miscellaneous" page: • http://www.tuvaluislands.com/stamps/st-c1979.htm Tuvalu commemorative stamp includes depiction of Captain Cook and the 1769 transit of Venus. • Original postcard by Cynicus entitled "The Transit Of Venus;" two policemen carry a woman. Links added to "Historical..." page:

	• ILN-Hawaii.jpg A station in Hawaii, from the Illustrated London News, 05 December 1874. • ILN-Rodriguez.jpg Triangulation on Rodriguez Island, from the Illustrated London News, 24 October 1874.
July 15	Added to "Historical..." page: crabtree.jpg Image of print of Ford Madox Brown's depiction of William Crabtree witnessing the 163 transit of Venus. See the Internet caveat for assorted online descriptions of this event.
July 14	Added to "Historical..." page: A celestial print from Johann Doppelmayer's *Atlas Coelestis* (1742) touted the upcoming 1761 transit and illustrated Venus' predicted path across the sun. Bruce Stephenson offers a translation of a figure caption and of text under "*1761 & 1769 Transits of Venus*" on the "Historical..." page.
July 7	Items added to "Miscellaneous" page: • Image of Victorian trade card advertising Keystone Handy Tablets for Tourists; illustration is titled "The Transit of Venus." • Link to the index of *Transit of Venus*, a book of poems by Harry Crosby; Black Sun Press, Paris, 1931. Link added to "Observing" page: http://www.melitatrips.com/venus.html Cruise to Turkey and Greece or travel to East Africa to view the 2004 transit of Venus through tours arranged by the Astronomical Society of the Pacific.
July 6	Scanned images excerpted from *A Popular Account of Past and Coming Transits* by Richard Proctor; 1882, are available at our new Richard Proctor page, as is a link to the whole text through Stanford University.
July 5	Sunrise images added to gallery; pictures were taken from YMCA Camp Eberhart in Three Rivers, MI, during AstroCamp week.
June 20	Links added to "Historical" page: A four-part series of articles by Helen Sawyer Hogg chronicles Le Gentil's thwarted efforts to view both the 1761 and 1769 transits of Venus, as well as his triumphs; with English translations of excerpts of Le Gentil's memoir .
June 17	Links added to "Historical" page: • http://dlib.stanford.edu:6520/text1/dd-ill/transit-memoir.pdf Memoir of the life and labours of Jeremiah Horrocks, by Rev. Arundell Blount Whatton; and the entire *The Transit of Venus Over the Sun* by Jeremiah Horrocks; 1639 (10.6 MB). • http://dlib.stanford.edu:6520/text1/dd-ill/transits-venus.pdf *A Popular Account of Past and Coming Transits*, by Richard Proctor; 1882 (30.7 MB) • http://dlib.stanford.edu:6520/text1/dd-ill/transit-1874-1.pdf Account of observations of 1874 transit, edited by Sir George Airy; (35.5 MB). • http://dlib.stanford.edu:6520/text1/dd-ill/transit-1874-2.pdf Accounts of expedition to Waimea, Hawaii, by R. Johnson; expedition to Kerguelen Island by Corbet and Coke; 1874; (34.6 MB). • http://www.nhm.org/research/publications/Baja_Cal_Travel/baja46.html Book: *The 1769 Transit of Venus, The Baja California Observations of Jean-Baptiste Chappe d'Auteroche, Vicente de Doz, and Joaquín Velázques Cárdenas de León;* edited by Doyce B. Nunis, Jr. Transit of Venus books by Eli Maor and by David Sellers (see Education page) are reviewed in the June 2003 issue of *Planetarian*, the journal of the International Planetarium Society (Vol. 32, No. 2, pp. 37-38).
June 16	Link added to "Historical" page: Eric Schreur of the Kalamazoo Valley Museum photographed a beautiful panorama of Matavai Bay, Tahiti, including Point Venus, from which Captain James Cook observed the 1769 transit of Venus. Updated Links page lists most of the website's links, but without thumbnail images.

June 12	A few sunrise images from northeast Indiana suggest how and where the sun will appear next year. From you we solicit images of the sun at sunrise and through 7:05 a.m. EDT for the Gallery page.
June 8	*One year to 2004 transit of Venus!* Link added to "Historical" page: http://www.phys.uu.nl/~vgent/venus/venustransitbib.htm Extensive bibliography related to transits of Venus, with links to many of the original publications. Link moved from "Historical" page to "Miscellaneous" page:: http://es.rice.edu/ES/humsoc/Galileo/Things/g_sunspots.html Animation of Galileo's sunspot observations.
June 5	Links and text added to "Safety" page, which include pinhole projection and telescope projection techniques: • http://www.eso.org/outreach/eduoff/vt-2004/vt-safety.html • http://www.popastro.com/sections/solar/chap3.htm • www.chabotspace.org/vsc/exhibits/solarb/educationresources/touchthesun/03_PINHOLECAMERA.pdf • http://www.shu.ac.uk/eclipse/observe.html • http://ottawa.rasc.ca/kid_space/activities/young_observers/2000_december/eclipse.html.
June 4	We are creating a Photo Gallery of sunrise images near June 8th so people can plan where to view the sun with an unobstructed horizon. We invite you send pictures of sunrise with local landmarks to assist observers in planning for the 2004 transit of Venus.
June 3	Links added to "Miscellaneous" page: http://www.dws.org/sousa/mid/transit.mid Bandmaster John Philip Sousa wrote a march entitled *Transit of Venus* in 1883; (MIDI file).
June 2	Links added to "Miscellaneous" page: http://ennui.shatters.net/gallery/view_album.php?set_albumName=Calculus A gallery of unique celestial phenomena including transits, occultations, and events as seen from throughout the solar system. http://antwrp.gsfc.nasa.gov/apod/ap030509.html Astronomy Picture of the Day shows the International Space Station transiting the moon. http://www.intermed.it/bradbury/Allsummer.htm Excerpt from Ray Bradbury's *All Summer in a Day*.
June 1	Our email service is back on track. However, mail sent in the past couple of weeks may not have been delivered. If it was important, please send it again to bueter@transitofvenus.org. Also, always include a descriptive Subject line so that your email is not automatically forwarded to the spam pile.
May 23	E-mail service disrupted. Apparently much of the e-mail destined to bueter@transitofvenus.org in the past couple of weeks has not been delivered to us. We are working with our ISP to recover lost mail. Please pardon our lack of response to your correspondence. We will post a notice here of e-mail resumption. Thank you for your patience.
May 13	Link added to "Historical" page: http://www.bo.astro.it/~biblio/sma/page/venere_05_06_1761.html Bibliographical and archival records from the Department of Astronomy of the University of Bologna (Italy).
May 12	Link added to "Spacecraft" page: http://sohowww.nascom.nasa.gov/hotshots/ SOHO spacecraft captures Mercury transit on May 7, 2003. Demand swamps their server, indicating potential interest for transit of Venus. Link added to "Education Resources" page: http://www.aas.org/publications/baas/v34n2/aas200/488.htm Paper abstract from 2002 AAS meeting deems 2004 transit "a cosmic opportunity." Link to Richard Pogge's humorous recap of early expeditions is corrected to http://www-astronomy.mps.ohio-state.edu/~pogge/Ast161/Unit4/venussun.html.
	Link added to "Safety" page:

May 1	http://users.hubwest.com/hubert/mrscience/sunspot/sunspotter.html Online design and instructions for making and using Hubert van Hecke's sunspotter. http://www.starlab.com/ltiss.html The Sunspotter is commercially available from Learning Technologies Inc. Link added to "Science & Math" page: http://www.williams.edu/astronomy/eclipse/transitVenus.htm Jay Pasachoff's site links to transit of Venus interests. Link added to "Observing" page: http://www.capecodhouseforrent.com/ Travel to Martha's Vineyard to view the 2004 transit of Venus when the sun rises. Rent a house.
April 30	Link added to "Education Resources" page: http://sunearth.gsfc.nasa.gov/sunearthday/2003/vttest.htm Coming September 1, 2003: new Sun-Earth Day resources from the fun folks at the Sun-Earth Connection!
April 28	Link added to "Safety!" page: http://astronomicalleague.com/sunf.htm Book: *Observe and Understand the Sun*, edited by Richard E. Hill; published by the Astronomical League. Link added to "Education Resources" page: http://www.lpl.arizona.edu/~rhill/alpo/transit.html Association of Lunar & Planetary Observers (ALPO) Venus Section, with links to Solar Section and others.
April 2 4	Link added to "Historical..." page: http://ftp.rootsweb.com/pub/usgenweb/pa/montgomery/history/local/mchb0001.txt History of Montgomery County, PA, 1884; notes David Rittenhouse's role in 1769 transit of Venus.
April 23	Link added to "Spacecraft..." page: http://www.eso.org/outreach/press-rel/pr-2003/pr-09-03.html ESO press release announces discovery of glowing hot transiting exoplanet.
April 4	http://www.heavens-above.com Heavens-Above added belatedly. Three illustrations with parallax analogy added to Education Resources page.
March 31	Links added to website: http://sunspotcycle.com/ Solar "weather," including forecasts. http://sunspotcycle.com/sunspots/doityourself_sp.html (Spanish version) Viewing sun projection safely. http://es.rice.edu/ES/humsoc/Galileo/Things/g_sunspots.html Animation of Galileo's sunspot drawings. http://spot.colorado.edu/~underwod/astr/para.html Animation of parallax. http://www.nla.gov.au/collect/treasures/mar_treasure.html Cook's view from Point Venus, Tahiti. http://www.aas.org/publications/baas/v32n4/aas197/785.htm Abstract re: "black drop" effect causes. http://www.jacquesdeshaies.com/ecrits/venus/venuseng.html Transit *to* Venus artwork re: biotechnology ethics. http://www.netspeed.com.au/minnah/2004/Transit_of_Venus.html Australian observatory re: post-transit images. http://chandra.harvard.edu/photo/cycle1/venus/index.html Venus in X-ray by Chandra satellite. http://www.seds.org/nineplanets/nineplanets/venus.html General background on planet Venus. http://nssdc.gsfc.nasa.gov/photo_gallery/photogallery-venus.html Venus photo gallery. http://nssdc.gsfc.nasa.gov/planetary/planets/venuspage.html Venus missions and resources from NSSDC. http://nssdc.gsfc.nasa.gov/planetary/magellan.html Magellan mission to Venus. http://www.aoc.nrao.edu/pr/gbtfirstsci.html New Greenbank radio telescope images Venus. http://www.lhl.lib.mo.us/pubserv/hos/voyages/cook.html Cook's illustration of "black drop" effect. http://www.amazon.co.uk/ Transit book by Patrick Moore. http://www.bdl.fr/Granpub/Promenade/pages6/608.html Transit painted on Paris Observatory ceiling. http://www.klima-luft.de/steinicke/ngcic/persons/legentil.htm LeGentil's Paris Observatory. http://www.seds.org/messier/xtra/Bios/legentil.html Astronomer Le Gentil background.
March 26	This *What's New?* page debuts for the benefit of our returning visitors.
March 26	Safety! page listing proper solar viewing techniques and resources is uploaded and listed among navigation buttons on left border.

March 25	New book *How to Observe the Sun Safely* by Lee Macdonald of Sky & Telescope magazine is linked from Safety! page.
March 22	One-page flyer posted on Education page is a handout briefly describing transit of Venus FAQ, global visibility , viewing safety, links, etc. Flyer will debut at NSTA Conference in Philadelphia, March 27-30, 2003.
March 1	Toyota TAPESTRY grant awarded to establish clearinghouse of Transit of Venus resources for educators and multiple users.

www.transitofvenus.org