What's New? - 2003

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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:

- **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."

December 14

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.

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."

December 10

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."

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)**.

December 8

> *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.

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

December 6	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.
November 26	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 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.
	The transit of Venus is a recurring topic at the 2003 Annual Conference of the Great Lakes Planetarium Association

October 27	(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.
September 2	**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: • **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. 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.
August 18	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.orgbueter@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.orgbueter@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**.
May 1	Link added to "Safety" page: **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.

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