



Historical Observations and Global Expeditions

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[1874 & 1882 Transits of Venus](#)
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<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.

1639 Transit of Venus



<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. Information by Paul Marston.



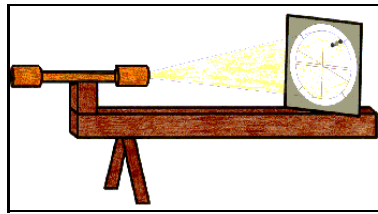
<http://www.hoolechurch.org.uk/main.htm>

The Hoole C.E. Church website features Jeremiah Horrocks, St. Michael Church, and the events commemorating and celebrating the transit, with Sir Patrick Moore serving as the Honorary Patron.



[hoole.htm](http://www.hoole.htm)

Destinations in England related to the transit of Venus, with emphasis on Jeremiah Horrocks.



<http://www.uclan.ac.uk/facs/science/physastr/misc/horrocks.htm>

Basic background on Jeremiah Horrocks, his observing device, and a later painting of Horrocks observing 1639 transit of Venus, by Eyre Crowe. From Paul Marston's chapter on Horrocks from the University Certificate in the History of Astronomy: "Presently on loan from the Walker Gallery and hanging in the Liverpool Museum Planetarium is a famous painting by Eyre Crowe BA. The painter said he modeled the room on that in Carr House, which he claimed in 1891 to have visited, though the Puritan outfit seems unlikely and elaborate equatorial telescopic apparatus unhistorical. The painting is now very dark, and is unclear without computer enhancement."

http://www.longtononline.co.uk/his_horrocks.html

Detailed background on Jeremiah Horrocks and William Crabtree, from Allen Chapman.



<http://www.lancashirechurches.co.uk/muchhoole.htm>

St. Michael Church at Much Hoole, with window that commemorates local resident Jeremiah Horrocks.



<http://www.astleyhall.co.uk/exhibitions.html>

Astley Hall Museum and Art Gallery plans exhibits and collaborations pertaining to Jeremiah Horrocks.

<http://www.venus-transit.de/1639/horrox.htm>

Excerpts from Horrocks' transit of Venus notes.

<http://maui.uclan.ac.uk/pasm-dlearning/history/TheTransitofVenus.pdf>

Chapter 17 from Horrocks' book; PDF file.

http://dlib.stanford.edu:6520/cgi-pbin/list_all_pdf.pl

Original publications scanned by Stanford University Libraries & Academic Information Resources and offered online, including:

- <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://www.liv.ac.uk/~ggastro/images3/Image14.jpg>

Photograph of book with Horrocks' observation recorded; from Liverpool Astronomical Society exhibit.



[crabtree.jpg](#)

Print of Ford Madox Brown's depiction of William Crabtree witnessing the 1639 transit of Venus. See the [Internet caveat](#) for assorted online descriptions of this event.

1761 & 1769 Transits of Venus



[doppel.jpg](#)

Venus in her chariot passes between the sun and earth; from Johann Doppelmayr's *Atlas Coelestis*, 1742.



[doppel_predict.jpg](#)

In 1742, two decades before the next transit would be visible, Johann Doppelmayr's *Atlas Coelestis* touted the upcoming 1761 transit and illustrated Venus' predicted path across the sun. This side-view of the sun shows the path of Venus transiting from left to lower right in 1761. A similar descending transit will occur June 8, 2004. Above the sun is the figure caption, which reads :

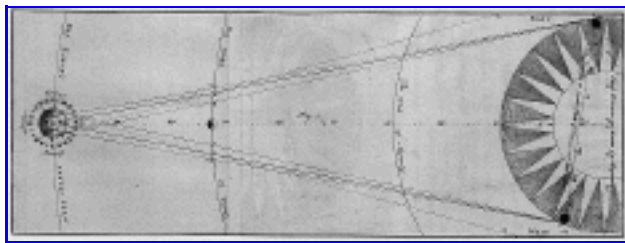
*The very rare phenomenon of Venus
whose body will pass like a spot
beneath the shining globe of the Sun.*

The text within the sun's body reads:

*The conjunction of the Sun with Venus
in the year 1761 on the day June 6,
at 1:46 PM at Nuremberg according to the calculation
of Halley, seen near the descending node.*

Translations are courtesy of Bruce Stephenson,
Director of the History of Astronomy Department at the [Adler Planetarium and Astronomy Museum](#) in

Chicago.



[http://www-astronomy.mps.ohio-](http://www-astronomy.mps.ohio-state.edu/~pogge/Ast161/Unit4/venussun.html)

[state.edu/~pogge/Ast161/Unit4/venussun.html](http://www-astronomy.mps.ohio-state.edu/~pogge/Ast161/Unit4/venussun.html)

Humorous summary of global expeditions to time the Venus transits of 1761 & 1769, with emphasis on the personal challenges and travails.



[ferguson.htm](#)

James Ferguson authored *Astronomy Explained Upon Sir Isaac Newton's Principles and Made Easy to Those Who Have Not Studied Mathematics*; third edition, 1764. Posted are excerpted images.



Plate XVII from James Ferguson's "Astronomy Explained..."



Background on astronomer and frustrated observer Guillaume-Joseph-Hyacinthe-Jean-Baptiste Le Gentil de la Galaziere (aka Le Gentil).



[Plate V](#)

Out of Old Books (Le Gentil and the Transit of Venus), by Helen Sawyer Hogg; scanned from Journal of the Royal Astronomical Society of Canada, 1951, and provided by [NASA Astrophysics Data System \(ADS\)](#).

This four-part series of articles chronicles Le Gentil's thwarted efforts as well as his triumphs, with English translations excerpted from Le Gentil's memoirs:

- [2/1951](#) Expedition beginnings to frustrating 1761 sighting at sea; years in Manila;
- [4/1951](#) Departure from testy Manila; two experiences at sea, including the arguing pilot and sulking captain;

- [6/1951](#) Le Gentil recounts the cloudy morning of the thwarted 1769 transit; nearly shipwrecked trying to sail home;
- [8/1951](#) Trip home, looted estate, eventual retirement..



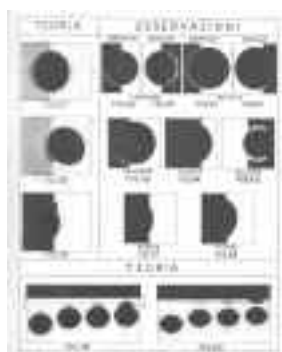
<http://www.bdl.fr/Granpub/Promenade/pages6/608.html>

Painted ceiling of the Paris Observatory shows Venus passing in front of the sun; additional transit of Venus material (French text).



<http://www.klima-luft.de/steinicke/ngcic/persons/legentil.htm>

Picture of Paris Observatory in 17th century, at which Le Gentil observed.



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), featuring manuscripts of observations made in Bologna by Eustachio Zanotti; includes images and resources from transits in addition to the 1761 records. (Italian; a link with some English translation is at <http://www.bo.astro.it/~biblio/Archives/copertina.html>.)

<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://www.faculty.fairfield.edu/jmac/sj/scientists/hell.htm>

Postage stamp of Father Maximilian Hell commemorating his expedition to Lapland for the 1769 transit of

Venus; accompanying story details the besmirching of Father Hell, who eventually got back his good name.



http://www.th.physik.uni-frankfurt.de/~jr/gif/stamps/s_hell.jpg

A good image of a stamp of Maximilian Hell, S.J.

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

- (Not online) Part I: an introduction to the transit of Venus and the method of Halley (timing both ends of transit from one site) versus the method of Delisle (timing two individual contacts from two sites).
- (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'Auroche 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'Auroche 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.

http://coombs.anu.edu.au/~cookproj/archive/royal_society/green.html#top

XLIII. Astronomical Observations made, by Appointment of the Royal Society, at King George's Island in the South Sea; by Mr. Charles Green, formerly Assistant of the Royal Observatory at Greenwich, and Lieut. James Cook, of His Majesty's Ship the Endeavour. p. 397.*



Point Venus (on right side of panorama) and Matavai Bay, Tahiti, from which Captain James Cook observed the 1769 transit of Venus; image courtesy of Eric Schreur, Kalamazoo Valley Museum. (492 KB)



http://www.nla.gov.au/collect/treasures/mar_treasure.html

Cook's view from Point Venus; from the National Library of Australia.



[matavai.gif](#)

18th century view of Matavai Bay, Tahiti, at which Cook observed the transit.



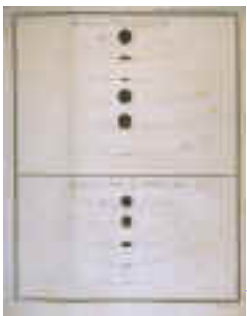
<http://www.mariner.org/age/cook.html>

Venus Fort, Erected by the Endeavour's People to secure themselves during the Observation of the Transit of Venus, at Otaheite.



<http://star.arm.ac.uk/history/transit.html>

Drawings of the Transit of Venus by Captain James Cook and Charles Green, from the Armagh Observatory.



<http://www.lhl.lib.mo.us/pubserv/hos/voyages/cook.html>

Cook's and Green's illustrations of "black drop" effect; from Linda Hall Library collection.



<http://www.jcu.edu.au/aff/history/southseas/>

South Seas Project

- <http://www.jcu.edu.au/aff/history/southseas/journals/index.html>
Endeavour journals and map index.
- <http://www.jcu.edu.au/aff/history/southseas/journals/maps/17690628.html>
Endeavour journals and interactive map.
- <http://www.jcu.edu.au/aff/history/southseas/journals/maps/contents.html>
Interactive maps of the Endeavour voyages.
- <http://www.jcu.edu.au/aff/history/southseas/journals/maps/17690628.html>
Map of Cook's Circuit of Tahiti, Windward Is., 26 June-1July, 1769.

- <http://www.jcu.edu.au/aff/history/southseas/biogs/P000085b.htm>
Brief summary of the role of transits in determining the Astronomical Unit.
- <http://www.jcu.edu.au/aff/history/southseas/journals/Parkinson/045.html>
Sydney Parkinson's data for the transit, recorded in his journal.

<http://www.kiasma.fi/arkisto/transitofvenus/text54.html>

Excerpts from Captain James Cook's description of his transit of Venus experience (in old calendar dates).



[cook_tent.jpg](#)

While the lonely crew of the *Endeavour* may have extricated nails from the ship's hull to barter for favors, Captain James Cook and expedition scientist Charles Green witnessed and [recorded](#) the "black drop" effect. Captain James Cook's observation tent; one source claims this is a Tahiti field drawing from Cook's French Edition, 1769; another source suggests more likely it is the observatory designed for Cook's third voyage.



<http://www.CaptainCookSociety.com>

Captain Cook Society



<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..

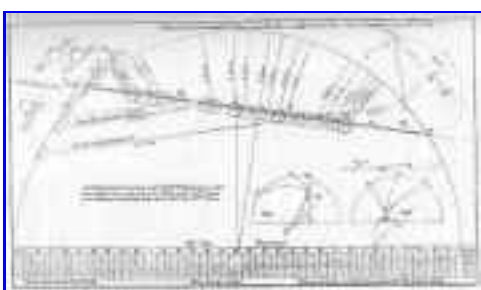
http://www.pacificislandtravel.com/books_and_maps/captaincook4.html

The secret mission of Capt. James Cook.



<http://www.npg.si.edu/exh/franklin/winth.htm>

Harvard professor John Winthrop poses with his telescope and points to his transit of Venus diagram in painting.



<http://www.rootsweb.com/~usgenweb/pa/montgomery/1picts/6chart.jpg>

Chart: "Projection of the Transit of Venus over the Sun as observed at Norriton in Pennsylvania June 3, 1769."

<http://ftp.rootsweb.com/pub/usgenweb/pa/montgomery/history/local/mchb0001.txt>

History of Montgomery County, PA; edited by Theodore W. Bean, 1884; included is David Rittenhouse's account of his observation of the transit of Venus as seen from the Norriton Observatory.

"Norriton township...enjoys a world-wide celebrity in having had situated within its boundaries the "Norriton Observatory," at which place astronomical observations were made, and reported as "An Account of the Transit of Venus over the Sun's Disk, observed at Norriton, in the County of Philadelphia and Province of Pennsylvania, June 3, 1769."



[rittenhouse-log.htm](#)

Log observatory David Rittenhouse built for the 1769 observations at his Norriton farm; image courtesy of Historical Society of Montgomery County.



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 Velázquez Cárdenas de León*; edited by Doyce B. Nunis, Jr.; published by the Natural History Museum of Los Angeles County; 1982.



<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://www.melbourneobservatory.com>

Transit of Venus site emphasizing the 18th and 19th century transits. Two of Janssen's photo-heliographic devices are apparently in Australia--one in Melbourne and one in Sydney; from the Melbourne Observatory.



[beaver_mag.jpg](#)

The Transit of Venus: Stargazing in 1769; from *The Beaver--Canada's History Magazine*, April-May 2003.



www.rasc.ca/historical

Eighteenth and nineteenth century transits from the Canadian perspective; from Peter Broughton and the Royal Astronomical Society of Canada (RASC).

1874 & 1882 Transits of Venus



[usno.htm](#)

A [collection of photographs](#) from the US Naval Observatory depict life during 19th century expeditions to time a transit of Venus.



http://www.usno.navy.mil/pao/History/ToV_Chapter_7.htm

"The U. S. Naval Observatory And the American Transit of Venus Expeditions of 1874 and 1882," Chapter 7 of *Sky and Ocean Joined: The U. S. Naval Observatory, 1830-2000* by Steven J. Dick (Cambridge University Press, 2003).



[http://adsbit.harvard.edu/cgi-bin/nph-iarticle_query?bibcode=1881otv..book....](http://adsbit.harvard.edu/cgi-bin/nph-iarticle_query?bibcode=1881otv..book....1N&db_key=AST&page_ind=263&plate_select=NO&data_type=GIF&type=SCREEN_GIF)

[1N&db_key=AST&page_ind=263&plate_select=NO&data_type=GIF&type=SCREEN_GIF](http://adsbit.harvard.edu/cgi-bin/nph-iarticle_query?bibcode=1881otv..book....1N&db_key=AST&page_ind=263&plate_select=NO&data_type=GIF&type=SCREEN_GIF)

(Either cut and paste the two halves of the long URL into your browser or simply click the icon at left.)

From the rare book collection of the U.S. Naval Observatory, this unpublished report details the results of each party in the American Transit of Venus Expeditions of 1874 and 1882.



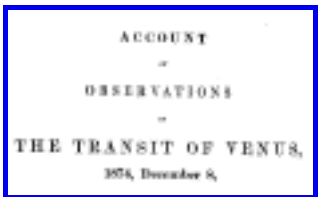
<http://canopus.sao.ac.za/~wpk/tov1882/tovwell.html>

Observations from Wellington, South Africa, of the 1882 transit of Venus; details the role of amateur women astronomers Abbie Park Ferguson and Mary Elizabeth Cummings alongside the American expedition team led by Simon Newcomb.



<http://web.inter.nl.net/users/anima/chronoph/janssen/index.htm>

The astronomer Pierre-César Jules Janssen devises a "photographic revolver" to capture the moment of Venus passing between the sun and the earth. Series of images shows transit near contact.



<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 the sun was seen in monochromatic light before the 1874 transit, while two observers recorded Venus against the chromosphere during the 1874 transit.



[http://adsbit.harvard.edu/cgi-bin/nph-iarticle_query?](http://adsbit.harvard.edu/cgi-bin/nph-iarticle_query?journal=MNRAS&year=1874&volume=..34&letter=.&db_key=AST&page_ind=350&plate_select=NO&data_type=GIF&type=SCREEN_GIF)

[journal=MNRAS&year=1874&volume=..](http://adsbit.harvard.edu/cgi-bin/nph-iarticle_query?journal=MNRAS&year=1874&volume=..34&letter=.&db_key=AST&page_ind=350&plate_select=NO&data_type=GIF&type=SCREEN_GIF)

[34&letter=.&db_key=AST&page_ind=350&plate_select=NO&data_type=GIF&type=SCREEN_GIF](http://adsbit.harvard.edu/cgi-bin/nph-iarticle_query?journal=MNRAS&year=1874&volume=..34&letter=.&db_key=AST&page_ind=350&plate_select=NO&data_type=GIF&type=SCREEN_GIF)

(Either cut and paste the two halves of the long URL into your browser or simply click the icon at left.)

The design of Janssen's "photographic revolver" is illustrated and described; from [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).



[ILN excerpts](#)

Headlines and drawings from the *Illustrated London News* report on the efforts of expeditions to Mauritius, Rodriguez Island, Cairo, and New Zealand.



[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.

http://dlib.stanford.edu:6520/cgi-pbin/list_all_pdf.pl

Original publications scanned by Stanford University Libraries & Academic Information Resources and offered online, including:

- <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.ifa.hawaii.edu/users/steiger/post_cook.htm

The first record of scientific astronomical observations being made from Hawai`i appears to be that of a British expedition on 8 December 1874. Captain G. L. Tupman of the *HBM Scout* observed a transit of Venus. King David Kalakaua, who reigned over the Kingdom of Hawai`i from 1874 to 1891, established the first permanent observatory in Hawai`i, in 1883.

<http://web.syr.edu/~rcranger/wardv.html>

Letters from photographer Ward V. Ranger relating the 1874 Transit of Venus Expedition to China; correspondence of the *Syracuse Journal* from Peking, China, September 25, 1874.



http://www.dgcch.unam.mx/coordinacion_bibliotecas/frame2/1874.htm

Book about the Mexican expedition to observe the 1874 transit of Venus at Japan; from Marco Moreno Corral and the National Institute of Astronomy at UNAM, Mexico; (in Spanish).



<http://angelfire.com/my/platform/transvenus.html>

Observation camp from Woodford, Australia, for 1874 transit.



[victoria.jpg](#)

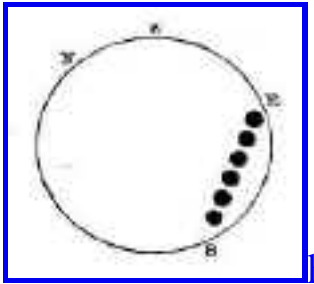
"The Recent Transit of Venus--Preparing for Work at an Australian Bush Station." Sketch from the May 8, 1875, issue of *The Graphic*: "Drawn by Mr. A.C. Allan, the Inspector-General of Plans and Survey, who was

one of the officers appointed in conjunction with the Government Astronomer (Mr. R.J. Ellery, F.R.S.) to carry out the observations in the Colony of Victoria."



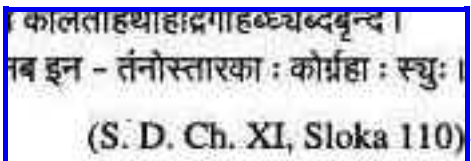
http://www.astro.univie.ac.at/~wuchterl/Kuffner/2004/Venustransit/russell_vt.html

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.



<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.



<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--rather an anachronistic 17th century Astronomer in the late 19th century"; from N. Rathnasree, Nehru Planetarium, New Delhi.

<http://www.bweaver.nom.sh/gill/gill.htm>

"Six Months in Ascension: An Unscientific Account of a Scientific Expedition by Mrs. Gill;" details six months on Ascension Island by Mrs. David Gill, printed 1878. Recognizing the limits of the transit of Venus for calculating the solar parallax, David Gill set out to measure the parallax of Mars, which was nearing opposition, using a heliometer. His wife Isobel accompanied him, and was vital in searching for and finding a more suitable site for observing than the original Georgetown, which was beset by poor weather.



<http://www.ras.org.uk/html/library/vtransit.html>

Royal Astronomical Society Library features images from 19th century transits.



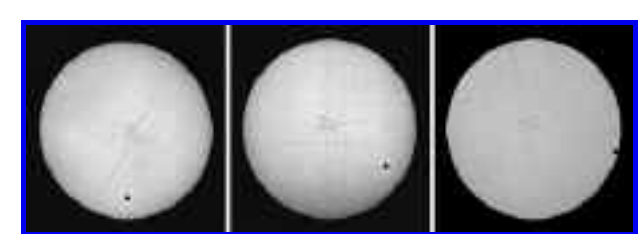
http://www.astro.univie.ac.at/~wuchterl/Kuffner/2004/Venustransit/VENUS_Transit1874/Venus33.jpg

"Waiting for the Transit of Venus, Eden; Plate XXXVI."



[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.



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.



<http://www.usno.navy.mil/library/rare/rare.html>

Photographic plates (dry collodion emulsion) of the 1882 transit of Venus; from the Naval Observatory and Transit of Venus Commission expedition. North is up, east is left.

<http://www.detroitobservatory.umich.edu/Chronologypage3.html>

The University of Michigan Detroit Observatory chronology notes 1882 "transit of Venus observations take place, using the Students' Observatory."



<http://www.venus-transit.de/1882/>

World visibility map from 1882.

<http://www.aas.org/publications/baas/v27n4/aas187/S035002.html>

"The American Transit of Venus Expeditions of 1882, including San Antonio," by Steven J. Dick (USNO); from the Bulletin of the American Astronomical Society, 1995.

<http://www.spri.cam.ac.uk/resources/expeditions/>

Index to British, French, American, and German expeditions to Antarctica; from Scott Polar Research Institute.

<http://www.jb.man.ac.uk/~abstract/abstracts/JD6P.html>

Abstract states Italian expedition confirmed the existence of Venus atmosphere by observing its spectrum for

first time.



<http://home.hetnet.nl/~smvanroode/venustransit/eng/ballhis.html>

Irish astronomer Sir Rowbert Stawell Ball's observation of the 1882 transit of Venus at Dunsink.

<http://cdl.library.cornell.edu/cgi-bin/moa/pageviewer?root=%2Fmoa%2Fmanu%2Fmanu0015%2F&tif=00042.TIF&cite=&coll=moa&frames=1&view=50>

A brief February 1883 report.



<http://www.library.uq.edu.au/fryer/hume/web/372.html>

Photograph of "Transit of Venus Group, December 1882, Jimbour" from the University of Queensland. (See images 372, 373, and 374.)



<http://www.astro.yale.edu/dept/overview/history.html>

Photograph of "the Yale Heliometer (the only one in America), delivered on time for measurements of the Transit of Venus on Dec. 6, 1882."



<http://www.nmsi.ac.uk/piclib/subjectdetail.asp?sub=nat&startcount=37>

" Photograph showing two men and a woman observing the 1874 transit of Venus through a telescope, Station D, Equatorial 12, 8-9 December 1874."



http://www.geh.org/ar/strip47/htmlsrc/lanternsld_sum00040.html

Multiple images on this page, such as "Transit of Venus Huts erected at Naval Observatory; transparency, collodion on glass." From the George Eastman House Still Photograph Archive.



http://www.snellenburg.com/Newpages/clocks/dent/dent_mahogany_regulator_with_zin.htm

Clocks used by British transit expeditions in 1874 and 1882.



www.rasc.ca/historical

Eighteenth and nineteenth century transits from the Canadian perspective; from Peter Broughton and the Royal Astronomical Society of Canada (RASC). -



<http://cho.uconn.edu/cgi-bin/scandoc.cgi?app=22&folder=2679&doc=1>

and <http://cho.uconn.edu/cgi-bin/scandoc.cgi?app=22&folder=2680&doc=1>

Illustrations of the 1882 German expedition to Hartford, Connecticut.



<http://www.vt-2004.org/Background/Info12/EIS-F7.html>

The 1882 Transit of Venus as Seen from Chile; from Hilmar W. Duerbeck.



<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."



[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.

Bibliography, Etc.

<http://www.phys.uu.nl/~vgent/venus/venustransitbib.htm>

Most extensive bibliography of original sources relating to transits of Venus, with links to many of the original publications; from R.H. van Gent.

http://www.dsellers.demon.co.uk/venus/ven_ch7.htm

Useful references and links from David Sellers.

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.



[_proctor.htm](#)

Images excerpted from *Transits of Venus, A Popular Account of Past and Coming Transits*, by Richard A. Proctor; 1875; includes link to [pdf file](#) of the book.

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.

<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."



<http://transits.mhs.ox.ac.uk/>

A browseable 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.

www.transitofvenus.org