Volume 6, Issue 1
SOLAR ECLIPSE NEWSLETTER

January 2001

SOLAR ECLIPSE NEWSLETTER

Inside this issue:

Solar Eclipse Mailing List

Dear Eclipse Chasers

Both Patrick & I wish everyone a happy and prosperous new year, and of course clear skies wherever your travels take you, chasing the shadow or not.

I again urge you all to first of all keep supporting the mailing list keep the channels of communication going, keep asking those questions, and for those in the know, keep sending those replies and tips!

I also urge anyone whose has reports, data, pictures to donate to the newsletter please send them to myself, this is the best way to share them with all members as cannot be done over the mailing list, and will greatly enrich the newsletter for everyone. Just to encourage you all I have press-ganged Patrick and some articles should be published in forthcoming newsletters.

You will not see any mails pertaining to the Partial Solar Eclipse in this issue. This is because we decided to issue a special edition will all the articles together after any eclipse.

I have set the dead-line of 26th January for you all to send me your pictures and reports if like us you were there and lucky. We had a great trip taking the children to the states to taste and savour a partial in preparation for Africa, also experiencing different aspects of America, although hopefully Africa will be a lot warmer.

To close and update you all, Patrick has requested the last remaining solar eclipse conference speakers to submit their papers & presentations for the CD-Rom proceedings. He can then get to work.

Regards

Joanne

The Solar Eclipse Mailing List

The Solar Eclipse Mailing List (SEML) is an electronic newsgroup dedicated to Solar Eclipses. Published by eclipse chaser Patrick Poitevin (patrick_poitevin@hotmail.com), it is a forum for discussing anything and everything about eclipses.

Thanks to the voluntary efforts of Jan Van Gestel of Geel, Belgium, the Solar Eclipse Mailing List (listserver) has been in operation since 10 December 1997. This is the first mailing list devoted solely to topic of solar eclipses on the internet.

You can send an e-mail message to the list server solareclipses@Aula.com, which will then forward your e-mail to all the subscribers on the list. Likewise, you'll receive e-mail messages that other subscribers send to the listserver. Only subscribers can send messages.

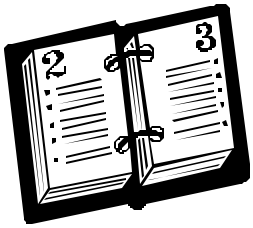
SUBSCRIBING TO THE SOLAR ECLIPSE MAILING LIST

THE SOLAR ECLIPSE MAILING LIST IS MAINTAINED BY THE LIST OWNER PATRICK POITEVIN AND WITH THE SUPPORT OF JAN VAN GESTEL

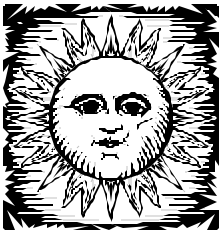
HOW TO SUBSCRIBE:

IN THE BODY OF THE MESSAGE TO listserv@Aula.com SUBSCRIBE SOLARECLIPSES name, country.

ECLIPSE CALENDAR



JANUARY 2001



Please find herewith January's solar eclipse calendar (a bit early due to vacation). If you have remarks or additional items, please send me a message.

January 01, 1386 New Years total solar eclipse in Europe. January 01, 1443 Partial solar eclipse on New Years day. January 01, 1489 Annular eclipse on New Years day. For Papua New Guinea was this eclipse visible on January 2. January 01 1805 Partial solar eclipse on New years day. January 01, 1824 Annular eclipse on New Years day. January 01, 1889 New Year's Day Eclipse. Illustration with direct telegraph line from San Francisco to New York for the astronomers has been published in many eclipse books. January 01, 2215 Annular eclipse of January 01, 2215 will be visible on New Years eve December 31, 2214 for the Southeast Pacific. January 01, 2272 Partial Solar Eclipse on New years day January 01, 2272.

January 02, 1424 The annular eclipse on January 2, 1424 was visible on New Years day for the South pacific, east of New Zealand.

January 02, 1892 Death of Sir George Biddell Airy (1801-1892), British Astronomer Royal from 1835 to 1881. President of the Royal Society from 1871 to 1873. Calculated the distance to the Sun. Observed transit of Venus and much more. (Ref Rc 1999)

January 05, 1935 Extreme solar eclipse. Magnitude of the eclipse was 0.0012. The maximum is only 0.12 percent of the solar-diameter. This solar eclipse was <visible> in the South Pole sea.

January 08, 1587 Johannes Fabricius was born. Fabricius was a Dutch astronomer who discovered the sunspots and Sun rotation. Died in 1615. (ref DD. 01/00)

January 08, 1642 Death of Galileo Galilei. Discovered his eye illness in January 1637. He could not read or write without technical help in June of the same year. Before the end of the year he was completely blind. His sight was eclipses forever. (ref. De jonge Galileo, Davidfonds nr. 341)

January 08, 1868 Sir Frank W. Dyson was born. Dyson proved that Albert Einstein (1879-1955) was right about light being bent by gravity. Co-writer of the book Eclipses of the Sun and Moon, 1937 (with R.v.d.R. Woolley). Died in 1939.

January 09, 1201 <Within the sun there was a black spot as large as a date> (ref BAA 12/00)

January 10, 1829 Birth of James Francis Tennant (1829-1915). During an eclipse seen from the Red Sea through India to Malaysia and New Guinea, prominences are first studied with spectroscopes and shown to be composed primarily of hydrogen by James Francis Tennant (1829-1915), UK, John Herschel (UK - son of John F.W. Herschel, grandson of William), Pierre Jules Cesar Janssen (1824-1907, France), George Rayet (France), and Norman Pogson (UK/India). (Ref. Rc 1999)

January 12, 1986 Death of Ludwig Biermann, German astro physician. His research of comet tails made him predicting the solar wind in 1951 with success. He described models of the corona and chromosphere of the sun s. (ref DD 01/00)

January 14, 0484 Athens "The eclipse of Sun was so pronounced that it turn day into night and the darkness permitted to see stars..." Marinus Neapolitanus. Life of Proclus, chapter 37 (ref. PG01/00)

January 14, 1742 Death of Edmond Halley (1656-1742 or 1743), British astronomer. Famous for comet Halley. Observed the so called Bailys' beads before Francis Baily (1774-1844). Royal Astronomer Royal from 1720 till his death. The Royal Society

(Continued on page 3)

ECLIPSE CALENDAR

mentioned 14 January 1742 or 1743. (ref. Rc 1999)

January 15, 1815 Birth of Warren de la Rue (1815-1889), UK. Warren de la Rue (1815-1889), UK and Angelo Secchi (1818-1878), Italy, use photography during a solar eclipse in Spain to demonstrate that prominences (and hence at least that region of the corona) are part of the Sun, not light scattered by the Earth's atmosphere or the edge of the Moon, because the corona looks the same from sides 250 miles apart. (Ref. Rc 1999)

January 15, 1948 Death of Henri Alexandre Deslandres (1853-1948), French physicist and astronomer. Did spectroscopic Solar research. Designed independent but at the same time from Hale the spectra heliograph. (Rc 1999)

January 15, 1976 German satellite Helios 1 passes the Sun at only 48 million km.

January 16, 1135 Lin-an Shao hsing reign period, 5th year, first month, the first day. Ch'en Te-I predicted that the Sun should be eclipsed..." Sung-shih, chapter 81 (ref. PG 01/00)

January 17, 1938 William H. Pickering, American astronomer died. He studied several solar eclipses. Born in 1858. (ref DD 01/00)

January 17, 2447 Three total solar eclipses visible within a strip of the Pacific Ocean south of Hawaii over a period of only 4.3 years: 17 January 2447, 12 May 2450 and 1 May 2451. Approximate geographic longitude and latitude is 159 to 156 degrees West, 10 degrees North. (Ref. JM 09/99)

January 18, 0120 Lo yang "Yuan ch'i reign period, 6th year, 12th month, day wu wu. The Sun was eclipsed. It was almost completes. On Earth, it was like evening..." Hou-han-shu, chapter 28. (Ref PG 01/00)

January 19, 0301 From China <Within the sun there was a black vapour.> (ref BAA 12/00)

January 22, 1969 Launch Orbiting Solar Observatory 5, American spacecraft for Solar research.

January 23, 0901 Antakyah "We observed the solar eclipse at Antakyah on the 23rd of Kanun al thani in the year 1212 of Dhu al Qarnayn... more than half of the Sun was eclipsed..." Al Battani (Ref. PG 01/00)

January 24, 1004 Cairo "The was in the afternoon of monday the 29th of the month of rabi al-Awwal in the year 394 of al-Hijrah..." Al Zij al Kabir al Hakimi. (ref. PG 01/00)

January 24, 1544 Rainer Gemma observed the solar eclipse by using of solar projection. (ref DD 01/00)

January 24, 1882 Harold D. Babcock was born. Babcock was an American solar astronomer who proposed in 1961 that the sunspot cycle was the result of the Sun's differential rotation and magnetic field. Died in 1968.

January 24, 1914 Sir David Gill, Scottish watchmaker and astronomer died. Designed the value of a helio meter. Born in 1843. (ref DD 01/00)

January 24, 1925 Famous New York Eclipse. Northern limit passed somewhere through Manhattan: exact line between 95 and 97th Streets. Observers stationed at every intersection between 72nd and 135th Streets. Path New York and Connecticut clear skies. Millions of people witnessed the Eclipse.

January 24, 1925 Mabel L. Todd also was passionately interested in total solar eclipses, and traveled to a dozen of them at a time when expeditions often lasted for many months. He photographed the New England total eclipse of January 24, 1925 from an airplane, and some sources credit him with being the first astronomer to photograph the sun's corona from an airplane. Richard Sanderson 6/97

January 24, 1925 Capt. F. B. Littell took the company of 19 crew and scientists to an altitude of 4500 feet with a Zeppelin. Of the scientists, there were E. T. Pollock, G. H. Peters, H. H. Barnes, J. A. Jennings, and C. B. Watts, of watts limb charts fame. It

(Continued on page 4)

ECLIPSE CALENDAR

was a normal eclipse expedition but on a platform unique among them all. (ref. S and L E observations 1943-1993, F. Graham)

January 25, 1736 Birth of Joseph Louis Lagrange (1736-1813), French mathematician and astronomer. Described the 3 points, later called Lagrangepoints. (Ref. Rc 1999)

January 25, 1742 Edmund Halley, British astronomer died. During an eclipse in England, is the first to report the phenomenon later known as Baily's Beads; also notes bright red prominences and the east-west asymmetry in the corona, which he attributes to an atmosphere on the Moon or Sun. Halley observed from London (John Flamsteed (1646-1719) observed from Greenwich). Halley also probably draw the first eclipse map. Born in 1656.

January 25, 1908 The corona of the Sun was photographed for the first time (not during a TSE).

January 25, 1944 Hergé, with his famous Adventures of TINTIN (Kuifje) published his book Prisoners of the Sun in 1949. The Total Solar Eclipse described in this book is the one in South America on January 25, 1944.

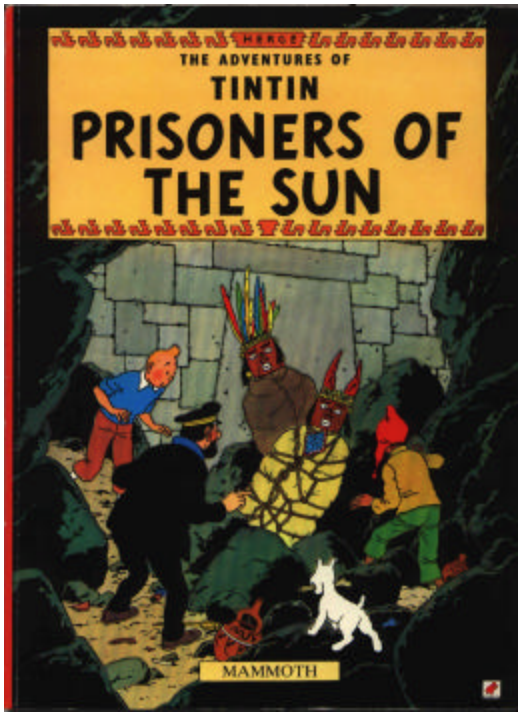
January 28, 1611 Born of J. Hevelius, Polish amateur astronomer, discovered the libration of the Moon.

January 30, 281 BC solar eclipse in Babylon (ref. PG 01/00)

January 31, 254 BC solar eclipse in Babylon (ref. PG 01/00)

Best regards, Patrick

An eclipse!.....An eclipse!.....An eclipse!.....



GENERAL TOPICS

Analysis of Spence's paper and the Haack precedent

From: Ari Belenkiy <belenkiy@ALBERT.PH.BIU.AC.IL> To: <HASTRO-L@WVNVM.WVNET.EDU> Sent: Sunday, December 10, 2000 12:38 PM Subject: Re: Analysis of Spence's paper and the Haack precedent

Shalom to everyone. Let me ask a couple of strange questions.

So far as I know it is taken for granted that Theon wrote "Handy Tables" c. 400. From where does the last date come? Could it be earlier, say, c. 350?

The second question is even heavier. Assume that Ptolemy wrote his work "Almagest" not c. 150 but much later... Is there any time in history when we can fit all his eclipses better than he did? All-in-all: could it be that Almagest was written by Theon?

Dr. Ari Belenkiy Physics Department Bar-Ilan University Ramat Gan Israel

From: R.H. van Gent <r.h.vangent@PHYS.UU.NL>

Detailed references on Theon and his astronomical work can be found in Otto Neugebauer's "A History of Ancient Mathematical Astronomy" (Springer Verlag, Berlin [etc.], 1975), vol. 2, p. 965ff [hereafter referred to as HAMA].

The lexicographer Suidas mentions him as a contemporary of Theodosius (379-395). He also observed the solar eclipse of 16 June 364 and the subsequent lunar eclipse of 25 November. Although the year of his death is not known, it is generally assumed to be before the unfortunate death of his daughter Hypathia in 415. A marginal note to the year 377 in a manuscript of Theon's last commentary (the so-called 'Small Commentary [on Ptolemy's Handy Tables]') suggests that he wrote his earlier commentaries on the Almagest and the Handy Tables before this date.

However, not Theon but Ptolemy is considered to be the author of the original Handy Tables as his preface has been preserved (HAMA, p. 969ff).

Considering the fact that the eclipses, planetary observations and associated tables listed in Ptolemy's Almagest implicitly lie at the basis of our reconstruction of Near Eastern and West Mediterranean chronology from circa 750 BC to circa 150 AD, one cannot arbitrarily shift them to other dates without completely upsetting our framework of ancient chronology and our theories of luni-solar and planetary motions.

In the past years the Russian mathematician A.T. Fomenko and his co-workers have attempted to redate most of Western history from a 'statistical' analysis of historical records which suggested that most of our history before circa 1400 is completely wrong. According to his theory Jesus Christ was actually born around 1200. He also tried to redate the Almagest from the listed planetary occultations, lunar eclipses and the star table. The result of his efforts was a 10th century AD date for the completion of the Almagest, long after Islamic astronomers had already been translating and commenting on the some work. * Robert H. van Gent

Is there any time in history when we can fit all his eclipses better than he did? All-in-all: could it be that Almagest was written by Theon?

Total Eclipse DVD

From: Michael Gill <eclipsechaser@yahoo.com> To: <SOLARECLIPSES@AULA.COM> Sent: Monday, December 11, 2000 10:56 AM Subject: [SE] 'Total Eclipse' - DVD

The UK computer magazine 'PC Advisor' has a cover disc that should be of interest to members of this list.
The DVD edition of the January 2001 (issue 64) publication of the magazine includes a DVD entitled 'Total Eclipse', presented by Patrick Moore. According to the cover, it is an 'in-depth look at how eclipses occur and the superstitions surrounding them. Includes footage of past eclipses and the eclipse of 11 August 1999'.

More details can be found at the following URL. .. http://www.pcadvisor.co.uk/about/coverdisc.cfm

Michael Gill.

GENERAL TOPICS

Solar Eclipse History

From: Nello Soldà <n.solda@eclipse2001.it> To: <solareclipses@AULA.COM> Sent: Monday, December 25, 2000 6:12 PM Subject: [SE] history

Hi, could you suggest me a web site where I can find something about the history of the eclipses, especially solar ones, please? For example eclipses connect with important events? Thank you very much.

From: Michael Simmons <msimm@ucla.edu>

http://sunearth.gsfc.nasa.gov/eclipse/SEhistory/SEHistory.html

But don't miss the main page with lots of information on eclipses at http://sunearth.gsfc.nasa.gov/eclipse/eclipse.html

Mike Simmons

Another memorable partial—1976

From: Glenn Schneider <gschneider@mac.com> To: <solareclipses@aula.com> Sent: Saturday, December 30, 2000 8:44 AM Subject: [SE] Another memorable partial...

Though I usually don't "chase" partials, I was inspired by all of the recent reports of the just-past Christmas eclipse to briefly summarize my one and only partial eclipse chase of days gone by, 29 April 1976. Did anyone else on this list also see this as a partial (i.e., not in the path of annularity?) See:

http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/PARTIAL_76/PARTIAL_1976.html

Cheers, Glenn Schneider

From: Jörg Schoppmeyer <schoppy@kwsoft.de>

Yes I saw it in Germany. I was a 10 years old boy and I remember very well that we interrupted a school lesson to watch the eclipse. Happy new year to everybody ! Joerg

From: Felix Verbelen <gd32020@glo.be>

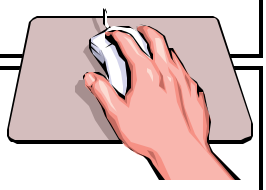
Hello! I saw this eclipse from my place here in Belgium from start till finish and also took B/W pictures about every 10 minutes (my notebook says: Exakta1000VX + Tele 400mm/F=16 + 2 polarising filters mutually rotated 90° + film: 16 DIN Kodak-Panatomatic-X -- exposure times: 1/250).

After processing it, I put the pictures together to show the full sequence of the eclipse. The final result is still on a wall of my hobby-room. If you care to see it go to

http://user.online.be/felixverbelen/19760429.jpg (42kB)

I'll leave the picture some days at this address. Kind regards and best wishes for the new year! Felix Verbelen

Eclipse Mousepads & T-shirts



From: Dave Balch <daveb@afew.com> To: Solar Eclipse Listserve <SOLARECLIPSES@AULA.COM> Sent: Thursday, December 07, 2000 12:46 AM Subject: [SE] Eclipse mouspads / T-shirts

Hi everyone... As many of you know, I am a professional speaker and have developed several programs dealing with solar eclipses. And, to go along with that, I have produced very cool mousepads and T-shirts... I invite you all to check my website and welcome your comments and suggestions.

BEFORE ANYONE SAYS ANYTHING, HOWEVER... I know that the photo shows me wearing eye protection while looking at totality... not accurate, I know... the photo is from my business card which does NOT show the eclipsed sun like the web page does... I going to go out on a limb here and call it "artistic license"!!! www.DaveBalch.com or, to get directly to the mousepad/T-shirts www.DaveBalch.com/orderform1.htm#Mousepad Thanks! Dave

GENERAL TOPICS

Delta T

From: Patrick Poitevin <patrick_poitevin@hotmail.com> To: SE Mailing List <SOLARECLIPSES@AULA.COM> Sent: Monday, December 11, 2000 7:48 PM Subject: [SE] Fw: Delta T

For the solar eclipse calculators: From: Jean Meeus:

On 2000 November 1, the quantity Delta T was equal to 64.04 seconds. This is only 0.29 second larger than on 1999 November 1, so the annual increase of Delta T continues to decrease slowly.

Here is the value of Delta T on November 1 of the past years :

1994 Nov 1	60.63 seconds	
1995 Nov 1	61.48 seconds	(increase = 0.85 second)
1996 Nov 1	62.18 seconds	(increase = 0.70 second)
1997 Nov 1	62.86 seconds	(increase = 0.68 second)
1998 Nov 1	63.39 seconds	(increase = 0.53 second)
1999 Nov 1	63.75 seconds	(increase = 0.36 second)
2000 Nov 1	64.04 seconds	(increase = 0.29 second)

Jean Meeus

From: Stephen McCann ITN <stephen.mccann@roke.co.uk>

Patrick, Jean, As a point of interest, what effect does the modified value of Delta T have on Fred's calculated positions of the path of totality for next year (June 21 2001) and indeed future eclipses.

I seem to re-call that Fred does mention Delta T variances in the NASA bulletin NASA/TP-1999-209484. Cheers Stephen McCann

From: Carton, WHC <Wil.Carton@corusgroup.com>

Sir, If DeltaT is expressed in seconds of time, then positions of the eclipse path are shifted eastward over (DeltaT * 1.0027 / 240) degrees in Geographical Longitude, if referred to the bias (DeltaT=0 and Ephemeris Longitude). Details: here is 1.0027 the ratio of the mean solar day with regard to the siderial day, and 240 the product of 4 minutes (=1 degree) * 60 seconds. Next: Fred had already adopted an extrapolated value for DeltaT and computed the corresponding Geographical Longitudes. So what you can do is: determine your best DeltaT, subtract Fred's value of DeltaT, giving DiffDeltaT and keep attention to its sign (positive or negative). Next compute your longitude-shift from (DiffDeltaT * 1.0027 / 240), giving your additional shift to Fred's Geographical Longitudes. Now you have to determine eastward or westward: was DiffDeltaT negative, then Fred's DeltaT was higher than your value so your additional shift is westward. But was DiffDeltaT positive, then your DeltaT was higher than Fred's value, so your additional shift is eastward. Wil Carton, Castricum, HOLLAND.

From: Peter Tiedt <Peter.Tiedt@npc-eagle.co.za>

A change in Delta T of 1 second will mean
a shift in the path (E or W) of
464 m at the equator,
402 m at Latitude 30, and
232 m at Latitide 60

False Eclipse Photography Technique

From: Carton, WHC <Wil.Carton@corusgroup.com> To: <SOLARECLIPSES@AULA.COM> Sent: Wednesday, December 20, 2000 10:38 AM Subject: RE: [SE] False eclipse Photography technique

Eclipse friends, Decades before the digital technique added new capabilities to photography, already false eclipse pictures appeared in press. The Italian newspaper LA STAMPA of the evening of Wednesday 15 February 1961 published on its entire frontcover a false photo of the total solar eclipse that had occurred that early morning in Northern Italy (totality passed across Alassio, Pisa, Firenze, Ancona). The "photograph" had clearly been produced in the darkroom by cutting a circle of paper and by exposuring it on a sheet of photo-sensitive paper. A degree besides the "eclipsed sun" the "photo" showed a cometlike streak of light... clearly a fault made in the hurry in the darkroom. My friend Jean Meeus and I had a tremendous funny evening with that newspaper. Jean added the story in a commentary to his eclipse observations in the Dutch amateur magazine "De Meteoor". Wil Carton, Castricum, HOLLAND

GENERAL TOPICS

Earthshine

From: Bill Donahue To: HASTRO-L@WVNVM.WVNET.EDU Sent: Thursday, November 30, 2000 5:15 AM Subject: Earthshine

In his Optics (1604), which I have just finished translating and which is now available from Green Lion , Kepler considers this light and ascribes it to the earth. He attributed the discovery to his teacher Michael Maestlin, who published it in his Disputation on eclipses of 1596. Kepler included an extensive quotation from that work. (pp. 254-5 of the 1604 edition, pp. 266-7 of the translation). This may be the first *published* explanation using earth light. Bill Donahue

From: dario tessicini <dario@FOROBIT.IT>
You might refer to the latin work De Immenso (Frankfurt 1591), where Giordano Bruno establishes a reciprocity between the properties of Earth and Moon (along with all other planets). The Moon is called "alia Terra", following the Pythagorean definition of the Counter-Earth (antichton). In book 3, as in other places, Bruno deals with the problem of the eclipses, which is an important feature of his cosmology in order to explain why some celestial bodies are invisible (they don't cause eclipses) and to establish a principle for determining the distance between planets. In the context of the eclipses explanation, Bruno says that, as the Moon illuminates the Earth with its light (reflected by the Sun), so does the Earth (bk. 3, ch. 8 and passim). In this same work, you can find diagrams illustrating how eclipses are possible or not varying planetary distances. In this sense we can talk about "mutual illumination" of the Earth and Moon, but I don't know if it's comparable with other modern/recent theories. Dario Tessicini

From: Julian Cole & Chris Rua <cole_rua@TIAC.NET>
The recent discussion of Earthshine has referred to the claim that Leonardo was the first to provide the correct (albeit unpublished) explanation. In Leonardo's notebooks (I quote the translation - Leonardo's own words may be found in the same source - in Jean Paul Richter's compilation & translation), we find some rather clear diagrams [[Ricther, Volume II, pp. 163, 164]] showing the earth and sun, with the moon between them revealing a sliver of its sunlit side to the observer on the earth, together with the following notes:

"Show how, if you were standing on the moon or on a star, our earth would seem to reflect the sun as the moon does." [[Richter, Vol II, p. 156]]

"The moon, with its reflected light, does not shine like the sun, because the light of the moon is not a continuous reflection of that of the sun on its whole surface, but only on the crests and hollows od the waves on its waters." [[p. 160 - Leonardo is pointing out that the moon cannot be a smooth mirror, as many of his contemporaries held, but must be rough and highly reflective - hence his hypothesis that it is covered by waters like the earth]]

"When the eye is in the East and sees the moon in the West near to the setting sun, it sees it with its shaded portion surrounded by luminous portions; and the lateral and upper portion of this light is derived from the sun, and the lower portion from the ocean in the West, which receives the solar rays and reflects them on the lower waters of moon, and indeed affords the part of the moon that is in shadow as much radiance as the moon gives the earth at midnight. Therefore it is not totally dark, and hence some have believed that the moon must in parts have a light of its own besides that which is given by the sun; and this light is due, as has been said, to the above-mentioned cause, that our seas are illuminated by the sun." [[p. 163. There seems to be some confusion about what Leonardo means by the "lower" and "upper" parts of the moon - perhaps the words refer to the position in the diagram - but the principle that we see the dark part of the moon illuminated by the earth seems stated clearly enough.]]

"And that brightness at such a time itself is derived from our ocean and ther inland seas. These are, at that time, illuminated by the sun which is already setting in such a way as that the sea then fulfils the same function to the dark side of the moon as the moon at its fifteenth day does to us when the sun is set." [[p. 164-5]]

- Julian Cole

"Show how, if you were standing on the moon or on a star, our earth would seem to reflect the sun as the moon does." [[Richter, Vol II, p. 156]]

GENERAL TOPICS

Solar Eclipses visible from New Hampshire

From: Eric Pauer To: Solar Eclipse Mailing List Sent: Tuesday, December 12, 2000 6:55 PM Subject: [SE] Solar Eclipses visible from New Hampshire

I was recently asked when the next solar eclipse, after the millennium ending 25 Dec 2000 partial solar eclipse, would be visible from southern New Hampshire (USA). A quick look at Fred Espanek's NASA RP1178: Fifty Year Canon of Solar Eclipses: 1986 - 2035 revealed that the next solar eclipse (of any type) would be next seen from here on 3 Nov 2013 ! This event will be locally a partial eclipse at sunrise for this hybrid SE. Seems like a long time not even to get a partial SE? I thought on average that some type of solar eclipse was visible from a given location about every 18 months or so. Eric Pauer New Hampshire, USA http://www.bit-net.com/~pauer

P.S. I hope to post some shots of the Christmas eclipse on my website shortly after the eclipse (same day hopefully). Locally it will be a 58.1% magnitude event. As always, let's hope the weather cooperates!

From: barr derryl

I have always understood that partial eclipses occur on the average once every 34 years from any given location on Earth. Looking at the occurance of eclipses for the city of Manchester, New Hamphire, as indicated in the Eclipse Complete program, one does indeed note an absence of eclipses from 2000 to 2013. However, if one looks beyond that point, the shortage is quickly made up during the middle of the 21st c. Between 2000 and 2079 (the year that serves Manchester an early morning total eclipse on the 1st of May) there are a total of 24 eclipses observable during that 79+ year period. The rough average between eclipses falls out at 3.29 years.

From: Eric Pauer

Thanks for checking this out. I was in Manchester NH for the 10 May 1994 annular eclipse, for which we had fine weather. It was this eclipse which perked my interest in solar eclipses. Locally, NH also recently had the 26 Feb 1998 and 11 August 1999 eclipses (although I was not in NH--I was in the path of totality!) as well as the upcoming 25 Dec 2000 eclipse. It just looks like the first 13 years of the third millennium will be a dry spell for solar eclipses in my area, which means I'll have to travel to view them. It does appear that eclipses often come in bunches. As for that 2079 eclipse, if I'm still kicking at age 113, I'll be there! Eric

I have always understood that partial eclipses occur on the average once every 3-4 years from any given location on Earth.

Magazine references

From: Patrick Poitevin <patrick_poitevin@hotmail.com> To: SE Mailing List <SOLARECLIPSES@AULA.COM> Sent: Wednesday, December 13, 2000 9:33 PM Subject: [SE] Magazine references

Dear All, Following solar eclipse related references in latest magazines:

Journal of the British Astronomical Association, 2000 December, Vol. 110, No. 6

Polynomial approximations to Delta T, 1620-2000 AD by Jean Meeus and Larry Simons

Centenaries for 2001 by Barry Hetherington
Light level and geomagnetic observations during the 1999 August 11 eclipse by Andrew Hollis

Sky and Telescope, January 2001

Solar filter scare by Peter Roth
Where the corona gets its heat by David Tytell
Where to see January 9th's total lunar eclipse by Roger W. Sinnott

Astronomy January 2001 (enclosed 2 solar eclipse glasses) - 255.201 copies

(Continued on page 10)

GENERAL TOPICS

Magazine references—cont.....

Trace turns up the heat by William Schomaker
Discovering Cosmic Rays (including the topic Solar Flares) by James Trefil
Sunsational Photography by Jean Dragesco
Embracing the Sun by Richard Talcot
Star Stuff: Total solar eclipse flag
Star Stuff: Sunspotter
Ultimate Exposure: This month's best astrophoto
Heelal December 2000 (in Flemish only)
Meteorologie in de Schaduw van de Maan by Frank Smits
Astronomische anomalieen by Jean Meeus

Sky and Telescope February 2001
Today's Science of the Sun - Part 1 by Carolus J. Schrijver and Alan M. Title
Solar Eclipse Science: Still going strong by Jay M. Pasachoff
A Pro-Am Solar Eclipse Conference by Jay M. Pasachoff
New Product showcase: A safe way to observe the sun
Best regards, Patrick

News from SIDC :

From: Patrick Poitevin <patrick_poitevin@hotmail.com> To: SE Mailing List <SOLARECLIPSES@AULA.COM> Sent: Tuesday, December 05, 2000 8:06 PM Subject: [SE] News from SIDC

At the SEC in Antwerp we could listen to the papers of a few SIDC members. Pierre, Frederic, David and Erwin were also the 4 chairman at the conference:

>From Solar News, The Electronic Newsletter of the Solar Physics Division, American Astronomical Society, Volume 2000 Number 23, Stephen R. Walton, editor, December 4, 2000 SIDC: Solar Influences Data Analysis Center

From David Berghmans <David.Berghmans@ksb-orb.oma.be 22 Nov 2000
The Web site of the SIDC (Solar Influences Data analysis Center) is http://sidc.oma.be .

Since the beginning of this year, the activities of the Solar Influences Data analysis Center (SIDC, hosted by the Royal Observatory of Belgium) have been significantly extended. The SIDC activities now include:

* the World data center for the Sunspot Index
The SIDC was founded in 1981 to continue the work of the Zurich Observatory, when this institution decided to stop publishing the sunspot number. Since then, the SIDC publishes monthly the international sunspot number based on more than 40 observing stations worldwide and calibrated to the original Zurich scaling. We compute the daily, monthly, yearly international sunspot numbers, with middle range predictions (up to 12 months).

* Regional Warning Center of the International Space Environment Service (ISES)
Recently, the Space Weather forecast center of Paris-Meudon was transferred and added to the activities of the SIDC. As such, the SIDC has now officially become a Regional Warning Center of the ISES. Data, forecasts and fast warnings are exchanged over the ISES network (central hub: SEC, Boulder) and made available each day to a few hundred users.

* Space weather research center.
To support the operational forecast center, we are developing new space weather prediction techniques. A European network was set up for large scale MHD simulations that model the space environment from the solar surface to beyond 1AU. The Belgian image archive of the Extreme Ultraviolet Imaging Telescope (EIT, on board SoHO) is used for statistical analysis of the occurrence of space weather related phenomena such as flares, CMEs and coronal holes.

During the coming months/years we will continue building the SIDC as an operational space weather forecast center. There are currently 4 post-doc positions available (http://sidc.oma.be/SWP/index.php3) to work in the network mentioned above. Consult our website http://sidc.oma.be to follow our progress or to register (free of any charge) as a new user of our data products.

GENERAL TOPICS

Multi-exposure Eclipse Technique

From: Eric Pauer <pauer@bit-net.com> To: Solar Eclipse Mailing List <solareclipses@aula.com> Sent: Tuesday, December 19, 2000 3:07 PM Subject: [SE] Multiexposure eclipse technique

With the upcoming solar eclipse, are there any opinions/suggestions on the best approach for a quality multiexposure photograph of a solar eclipse? I'm interested in a wide angle shot from a camera on a fixed tripod. One technique is to expose the same frame of film repeatedly. The other is to take individual shots, and digitally combine them afterwards. The problem with the first technique is that my camera limits the number of exposures on the same frame to 10. The reservation is have with the second is aligning the images correctly. I don't think that the folks that scan negatives can be that precise when the image only contains a small crescent sun, making a decent composite difficult to create. Any ideas or suggestions? Eric Pauer

From: <Jay.M.Pasachoff@williams.edu>
I think the choice is one of philosophy, not a technical one. It is much harder and much chancier to take a multiple exposure on a single piece of film, so if you decide that doing so is a personal goal, you can set up to accomplish it. But you get only one try (at each eclipse). If all you care about is having a final product without worrying about how it was accomplished, it is much easier and much likelier to succeed to take lots of individual photos and then put them together later. Even so, you mention "the folks who," as though it isn't something you would plan to do yourself. The battle over how much computer manipulation is "allowed" has been raging for years, and you can see similar battles in the letters and articles in "Popular Photography" magazine, for example. Jay Pasachoff

From: Dale Ireland <direland@drdale.com>
There is a program that will precisely register multiple images. Of course in the shot you describe you will need a couple reference points other than the Sun images on each frame, ie some landscape which might be hard to get if you are using a filter. The program is Picture Window, which many astrophotographers are familiar with. It is quite inexpensive and can be found on the digital light and color web site http://www.dl-c.com Dale Ireland

From: Dale Ireland <direland@drdale.com>
Yes I agree completely with Jay on this one. In fact, I wrote an article for Sky and Telescope on this very subject after their 1994 cover photo that showed the annular eclipsed Sun of that year artificially added to a farm landscape scene. I think you can go too far with digitizing. There is enough of a challenge in eclipse photography to just reproduce the scene with all its dynamic range and it is hard to define the point where digital manipulation has gone beyond reproducing the scene to actually creating something new, not necessarily artificial but not representative of the true view. Dale

From: Olivier Staiger <olivier.staiger@span.ch>
maybe you can try this: I have a Canon EOS camera that can be programmed for up to 9 multiple exposures. I thought so far I could only take up to 9 shots , but I was told that I can extend this: when I arrive before the last shot I could simply reprogram the camera again for 9 shots. I haven't tried it yet, but it sounds logical. See for yourself if your camera can be re-programmed to 10 shots after you've already done 8 or 9. Olivier "Klipsi" Staiger

From: Brian Garrett <mgy1912@home.com>
Indeed. I remember starting college in Portland, Oregon in the fall of 1979 and seeing postcards in the stores that showed the Portland skyline with a big, beautiful eclipsed sun overhead. Visitors and newcomers may have been impressed, but it struck me as more of a cruel joke, as the eclipse was clouded out, as any astronomical event is likely to be in western Oregon in February.
Artistry in photography is all well and good, but it should still depict what the photographer truly saw, not what s/he *wished* to see. Brian

GENERAL TOPICS

Eclipse Superstitions

From: Michael J. Crowe <Michael.J.Crowe.1@ND.EDU> To: <HASTRO-L@WVNVM.WVNET.EDU> Sent: Monday, December 18, 2000 8:56 PM Subject: Question regarding eclipses

To the Hastro list: I have received the following inquiry. Persons having suitable expertise may wish to respond. Mike Crowe

Hi Professor Crowe, here's the questions for the message board. Thanks! Derek Fuchs Tribune-Review (412) 320-7987 (my direct line)
Hello, I am a writer for the Pittsburgh (Pa.) Tribune-Review, trying to find information regarding early Christian superstitions possibly affiliated with the solar eclipse, in light of the upcoming Dec. 25 partial solar eclipse. Anyone with comments on my questions, please do not hesitate to contact me at the newspaper: Derek Fuchs Features Dept. email: dfuchs@tribweb.com (412) 320-7987 Thank you very much!

Questions:
- In the history of Christianity, have there been superstitions about the solar eclipses?
- What significance could a solar eclipse on Dec. 25 have for Roman Catholics and Protestants?
- What about for Greek Orthodox followers, who still follow the julian calendar and consider the winter solstice to be that date?

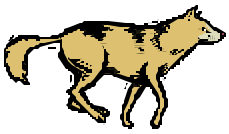
When responding, please include your name and phone number so I can verify the information. Michael J. Crowe

From: Raoul Martens <raoul@MARTENS.PP.SE>
Although both the Catholic and the Protestant Church was against superstition related to eclipses there has been a lot of it untill recently; see various Encyclopaedias.

During a solar eclipse in 1539 Luther prayed incessantly and at a solar eclipse in Munich as late as 1851, it was believed that a deluge would occur causing the Wallersee to break its dams; people said that the moon and the sun were fighting and citizens hurried to write their wills.

Eclipses, paricularly solar, at a calendar turning point, anciently spring equinox, in Christianity winter solstice, were apparently thought to be the most ominous and lead to postponement of important political and similar decisions.

In heathen but also later times eclipses were believed to be caused by a "wolf" who swallowed the sun or the moon.



In Swedish legend it was forbidden between Christmas Eve and the Twelfth Day to "call the wolf with its proper name". A reason for this is suggested to be that traditionally, and as recorded in a Swedish Computus Ecclesiasticus from 1683: "The Moon in Heaven on Twelfth Day shall be Yule-Tide Moon whether new or old". Knowledge that new and full moons are separated by c. two weeks and that solar eclipses occur at new and lunar eclipses at full moon, the fear for an eclipse near the commemoration of Christ's birth appears to be the reason for the rule which is a product of correct astronomy however building on the superstitious ideas about eclipses. 1992 the moon was new on X-mas Eve and full on Jan. 8, 1993. However, no eclipse occurred at or close to the said dates. Raoul Martens

Scientific experiments during total solar eclipses

From: <podmore@compcentre.uz.ac.zw> To: <solareclipses@aula.com> Sent: Wednesday, December 06, 2000 5:03 PM Subject: [SE] Scientific experiments during total solar eclipses
Hello again.... Apart from photographing and videoing a TSE (with or without a telescope) what scientific observations can school or university students (or their teachers or lecturers) make during a TSE which are or scientific value?

Would those responding either provide instructions and list of equipment necessary, or give links to published literature or (preferably) the appropriate websites - that would be MOST helpful.

Continuous monitoring of TEMPERATURE, PRESSURE, LIGHT LEVEL
Observations of the BEHAVIOUR OF BIRDS, ANIMALS, INSECTS
Are there (many) more I haven't thought of?
Suggestions are Most welcome. (:))) Francis Podmore

GENERAL TOPICS

How Long until the next total eclipse in LA

From: Jeff Batten <jeff.batten@csun.edu> To: <SOLARECLIPSES@AULA.COM> Sent: Monday, December 11, 2000 11:33 PM Subject: [SE] How long until the next total eclipse - Los Angeles

Anyone know how far into the future Los Angeles has to wait for a Total Solar Eclipse. Thanks Jeff

From: Evan Zucker
I'm sure somebody else will give you an exact figure, but I can tell you that it won't be in my lifetime, which is to say not before 2050 (when I'll be 95). I didn't bother checking beyond that because I won't be here to see it. Evan H. Zucker

From: Crocker, Tony (FSA) <Tony.Crocker@transamerica.com>
SoCal eclipses:

10 Sept 1923 was last: Northern limit just offshore from Santa Barbara to Orange County. Total in Channel Islands, coastal San Diego County and Northern Baja. Completely clouded out.

3 May 2106: Totality comes ashore from Big Sur south to Santa Maria. Path moves NE with centerline over Mt. Whitney at 9:47AM. (3:29 of totality)

14 July 2121 is a 98% annular over L.A. and Orange Counties.

17 July 2205 is early AM total ~2 min. in northern Baja and Imperial County.

20 Mar. 2406 is a slightly shorter version of 3 May 2106.

3 Sept. 2472 comes ashore at Palos Verdes 6:20AM for 37 seconds of totality. Narrow path moves E through Orange and Riverside Counties. Downtown L.A. is near northern limit.

15 October 2498 is total throughout Metro Los Angeles. Centerline is along the San Andreas Fault NW to SE. Totality extends from Big Sur and Bakersfield to south Orange County plus Riverside and Imperial Counties and all of the SoCal mountains. Downtown L.A. has 2:54 of totality at 8:01AM. Palm Springs on centerline gets 3:18 of totality at 8:09AM. Maximum totality for this eclipse is 5:20 in the Caribbean.

The above info courtesy of Emapwin.

From: Michael Simmons <msimm@ucla.edu>
I don't recall the year but there are none in the 21st century. The next total solar eclipse in the continental US is 21 Aug 2017, going from the northwest to the southeast. The next one in California (northern) is 12 Aug 2045. The last one in Los Angeles was 10 Sep 1923, the last one in California was an annular/total in northern California on 28 Apr 1930 and the last one in the continental US was 26 Feb 1979 (Hawaii had one on 11Jul 1991).

I know people whose fathers were on the staff of Mt. Wilson Observatory and went with the observatory's expeditions to the 1923 and 1930 events. In 1923, they were in San Pedro (just south of LA then but part of it now) and in 1930 they were at Honey Lake in northern California for the total phase which lasted only a few seconds and only at that spot. In both cases, clouds covered the sky.

See http://sunearth.gsfc.nasa.gov/eclipse/eclipse.html for tables and maps of eclipse paths, past and future.

Mike Simmons

From: Jörg Schoppmeyer <schoppy@kwsoft.de>
I think you forgot the one in January 1992, annular during sunset in LA.

From: Michael Simmons <msimm@ucla.edu>

I remember it well. It was cloudy here in LA. I went up in a private plane to try to get above the clouds but there was another layer above them that we couldn't get over (nor could the private jet another group hired). I later learned that it was clear to the south of us within easy driving distance but the pre-eclipse reports I got from people there were just as poor as in my area. Yes, I remember it very well. :-) I just included

(Continued on page 14)

I went up in a private plane to try to get above the clouds but there was another layer above them that we couldn't get over (nor could the private jet another group hired).

GENERAL TOPICS

How Long until the next total eclipse in LA—cont….

total eclipses in my list, though. Mike Simmons

From: Crocker, Tony (FSA) <Tony.Crocker@transamerica.com>
Perhaps I was blocking out 4 Jan. 1992. We drove to San Clemente and were clouded out 15 minutes before annularity.

From: Jeff Batten <jeff.batten@csun.edu>

Is Emapwin a eclipse path plotting program. Or Does anyone know on of a windows program that - given a date window - a series of paths will be plotted on the earth. Or does anyone have any Vb code? Thanks Jeff

1991 - Perfect Weather off of Mazatlan :) ******
1991 - Annular from San Diego - Missed the last 2 min due to clouds. But Wow ******
1998 - Perfect Weather off of Guadeloupe ******
1999 - Austria - Near Vienna - Clouds - Missed Corona - But wow did it get dark!
2000 - Need more money!!!! :(

From: Evan Zucker

That was 4 Jan 1992, not 1991.

Ramadan

From: Peter Tiedt To: 'SEML' Sent: Thursday, December 14, 2000 2:19 PM Subject: [SE] Ramadan
Some may know that we are presently in the Muslim Holy Month of Ramadaan, which will end with the sighting of the next "new" moon.
Traditionally, and practically the "new" moon is sighted as a thin crescent one day after new moon.
A few questions arise - does anyone know the answers to the following?
Can the viewing of the moon during the eclipse be construed as a "sighting", or must it be the crescent moon?
Ramadaan currently ends with an eclipse (partial) , and will also end with an eclipse in 2001 (Annular) , 2002 (Total) and 2003 (Total) - will this continue?
Must Ramadaan end with an eclipse, and if not, is there any special significance in it ending in an eclipse?
Peter

From: Marc Weihrauch <marc.weihrauch@student.uni-halle.de>
Hello That's an interesting question. As far as I know in the Muslim as well as the Jewish calendar every month begins / ends with the sighting of the new moon. So the question wether a solar eclipse counts as new moon sighting pertains to any month in these calendars.
I'm not sure, but I think there's a Jewish community in my city. I can try to find the answer to that part of your question. Wether Ramadaan always ends with a solar eclipse I can't tell. Best regards Marc

From: Brian Garrett
I'm not sure about the significance, if any, of eclipses during Ramadan, but as far as I know it has to be the new crescent moon being sighted, in order for one month to officially end and another begin.
www.moonsighting.com has lots of information about sighting the new moon and its significance to Islam, as well as links to other sites with complementary info. Brian

From: Daniel Fischer <dfischer@astro.uni-bonn.de>
Does anyone remember a 'Ramadan scandal' in 1983 when some over-ambitious crescent watcher already reported success a few hours *before* the total eclipse of that year and some countries started their Ramadan a day too soon? I remember flying back from Indonesia and reading a story about the confusion in a newspaper ... Daniel

P.S.: There is a mighy active group of crescent watchers being coordinated in Jordan - see http://www.jas.org.jo/ram21.html for the recent results.

(Continued on page 15)

GENERAL TOPICS

Ramadan—continued

From: Joel M. Moskowitz, M.D. <moskowi@attglobal.net>
The beginning of the Jewish month is traditionally the sighting of the earliest thin crescent. The reason I say "traditionally", is that it is no longer done that way. It is now calculated, just as we calculate astronomical phenomena. The reason for the calculation is to remove the effects of weather and observer disparity in sighting the early crescent. The astronomical new moon is not considered to be the start of the month. However, in Islam, it is still done by actually sighting the earliest thin crescent. And, no the "sighting" of the moon during an eclipse doesn't count, as you are not actually seeing the moon, but only its shadow (open to argument).

From: Khalid alsubai
Hi all, the answer of your question peter are as follow,

* No moon eclipse doesn't consider to start or to end that month .... it must be crescent moon.

* ending Ramadan with eclipse is not going to continue it is merely coincidence because the moon calendar is always moving backward in referencing to the solar calendar. Ramadan will come back to the same date after passing 33 years.

* No, there is no significant in it ending in an eclipse.
Best regards, K.alsubai

From: Olivier Staiger
Does anybody know when Ramadan will occur in the year 2027, when the total solar eclipse is visible from the holy city of Mecca, Saudi Arabia, on August 2nd 2027 ? Will it coincide ?

From: Michael Gill <eclipsechaser@yahoo.com>
There was an interesting discussion about eclipses in Ramadan on the SEML in 1998.
Check out the following...
http://www.mreclipse.com/SENL/SENL9811/SENL811i.htm
Michael Gill.

From: Evan Zucker
I don't understand why that would be open to argument. I assume you are talking about a solar eclipse. As you know perfectly well, when you observe a solar eclipse you see the moon itself, not just its shadow. The only time you would see its shadow at all would be by looking down during the total phase of a TSE.
But I'm not Moslem. Maybe the Koran says otherwise.

From: <Dorjenyma@aol.com>
Happy new year to all the list Following numerous messages about the Christmas eclipse which corresponded to the end of Ramadhan I wondered why this event will ocurr four years running and I have proceeded to compare both Moslem lunar year and eclipses year. One shoud bear in mind that there exist two different Moslem calendars : the lunar one as set by the Prophet (the most widely known and commonly used) and the solar one used in Iran and Afghanistan, influended by Zoroastrian tradition. In the latter the solar year starts at Spring equinox but people who use it also refer to lunar year to practise Ramadhan. In lunar calendar the year consists of 12 months of either 29 or 30 days, which eventually amounts to 354 days, that is 12 times 29,5 days. But as the moon cycle is a little shorter (354,357 days) the result of that is a lag which is compensated by adding up a 30th day to the 12th month 11 times within a period of 30 years. Thesee are known as "years of plenty" made up of 355 instead of 354 days.

The Moslem lunar year is therefore shifted each year by 10 or 11 days in comparison with the solar year (which means that New Year's Day and the end of Ramadhan will be retrograded accordingly). This delay is never made up for as it is with Chineese or others soli-lunar calendars, so that Moslem era slowly "eats up" Christian era : a Moslem wo is said to be 34 years old is in fact only 33 years old by the Christian calendar.

(Continued on page 16)

GENERAL TOPICS

Ramadan—cont.....

The so-called "eclipse year" is the time spent by the sun to shift back to any lunar node. Te apparent revolution of the sun is approximately 365 days long, but as the lunar nodes axis retrogrades each year by a little more than 19 days, the eclipse year is only 346 days long.

If those two years differ by about 9 days, how is it that the 25 12 00 solar eclipse which corresponds to the end of Ramadhan will occur again in 2001, 2002 and 2003 ? This may be so because eclipses do not neccessarily occur on the very node but rather within a zone through which the sun comes in (which accounts for the fact that there may be 2 or 3 eclipses at this time, but if there are 3 the first and third have to be only partial). Given the lag of about 11 days between solar and lunar years the 2000 Christmas eclipse will "occur again" on 14 12 2001 (annular), on 04 12 2002 (total) and 23 11 2003 (total). In 2004 the sun eclipse will occur on october 14 (partial) that is not 11 days earlier but one month and 11 days because after 4 years the eclipse "switches over" to the previous new moon. You just have to look up in the astrological or astronomical tables or else to inquire at the Longitude Office to realize that.

This series of eclipses corresponding to the end of Ramadhan should logically be followed by another series corresponding to the beginning of Ramadhan which also starts at the new moon. As a result there is a period of 8 years during which Ramadhan is "affected" by sun and moon eclipses. Moslem historians may wonder whether there are any correlations with particuliar events in Moslem societies.

Given the awe inspired by eclipses with Moslem people and the psychological impact born on anyone as a rule, could it be any differrent at a collective level if an eclipse should occur within a fast period ?

I am looking forward to hearing from you again ... Christophe Lanier

From: Normal user <turkey@qatar.net.qa>
Dear Mr.Lanier, I like your analysis to the problem in hand. However, Since Ramadan start with new moons and end with next one therefore we should expect such interference between lunar calendar and eclipse year in the period of 33 year, in spit of no body really pay attention to it before - I think - as we do these days. Because the eclipses we are talking about are mainly solar eclipses and as you know solar eclipses happen only on very narrow band on earth and most of time in places a way from the old civilizations. Add to that the ignorance by the actual size of the earth and lake of fast communication to confirm such predictions. But this proposition is not based on hard facts as much as it is a personal opinion.
Best regards, K.alsubai

Dear All, Today it is 10 December and 3 years ago, I started with the server of Jan Van Gestel the Solar Eclipse Mailing List. The first mailing list devoted on solar eclipses only. After 3 years, I am proud to say that we have 293 subscribers.
Keep those solar eclipse messages coming. Please encourage other eclipse friends to subscribe to the list:

To subscribe send E-mail to listserv@Aula.com with in the body SUBSCRIBE SOLARECLIPSES name, country

Since November 1996 I run the Solar Eclipse Newsletter. Joanne made the lay out wonderful in the last two issues. Please have a look at: http://www.MrEclipse.com/SENL/SENLinde.htm

Please keep those pictures, graphs and contributions sending to joanne_edmonds@hotmail.com

Best regards, Patrick

GENERAL TOPICS

Obituary - Roger Tuthill

From: Dale Ireland <direland@drdale.com> To: Solar Eclipse List <SOLARECLIPSES@AULA.COM> Sent: Monday, December 18, 2000 5:23 PM Subject: [SE] Roger Tuthill
I am forwarding this as received Dale Ireland

From: RRosenwald@aol.com
Dear Fellow Amateur Astronomers,
I'm using several egroups, lists as well as direct emails to announce the passing of one of the most active amateur astronomers in New Jersey. I apologize if you receive more than one copy of this announcement.

I received notice yesterday, from his wife Nancy, that Roger W. Tuthill passed away on Friday afternoon after being ill for several weeks.

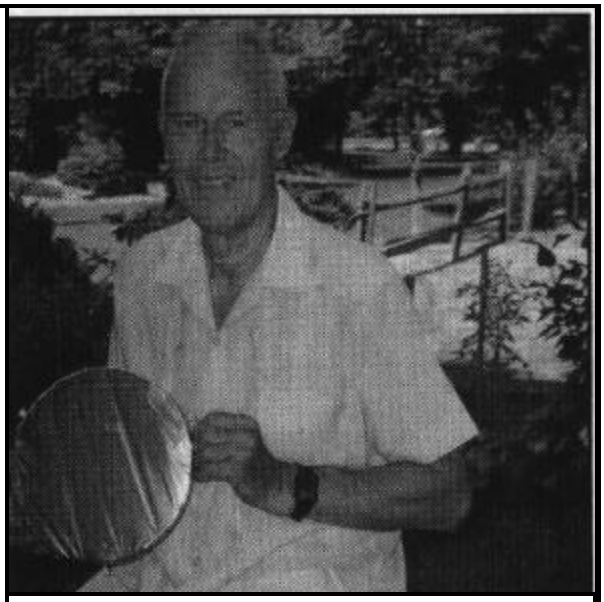
Roger was a long-time member and supporter for many years of Amateur Astronomer's, Inc., Stellafane, as well as the United Astronomy Clubs of NJ, and many other astronomy organizations and endeavors. He is well known for his eclipse chasing from the early 1970s where he had seen first-hand about 18 total solar eclipses. He was also well known world-wide for his innovative astronomical products. He was an "Astronomical", as well as a good, friend to so many of us. He will be missed. A service will be held on Dec. 29 at 1 pm at Memorial Funeral Home, 155 South Avenue, Fanwood, NJ. (Phone is 908-322-4350. The cross streets are Martine Ave and Terrill Road on the north side of the street.) Donations may be made to First Church of Christ, Scientist, Westfield in lieu of flowers.

If you know of anyone else who would want to know about this, please forward this email on.

Thank you. Sincerely, Barry Malpas UACNJ Obs. Chairman

From SKY & TELESCOPE'S NEWS BULLETIN - DECEMBER 22, 2000

ROGER W. TUTHILL, 1919-2000
Long-time amateur astronomer and entrepreneur Roger W. Tuthill of Mountainside, New Jersey, died of heart failure on December 15th following a brief illness. He was 81. Known to myriad friends and acquaintances as Tut, it was a midlife look at the Moon through a telescope in 1960 that ignited his lasting passion for astronomy. During the ensuing decade he became an increasingly well-known amateur astronomer, publishing several important articles on telescope making in Sky & Telescope.



Roger Tuthill—Everyone's astronomical friend.

With one of the century's longest total solar eclipses pending and organized eclipse travel almost nonexistent, Tut led a large group of amateurs to Africa's western Sahara Desert in the summer of 1973. During a preliminary scouting trip he planned to thwart the desert's intense daytime heat with a tent he made of aluminized Mylar. The experiment failed because of the tent's "maddeningly annoying" noise as it rippled in the ever-present wind. But sitting inside and looking up, Tut discovered that aluminized Mylar was a safe and effective solar filter. Sliced into small strips, pieces of the tent were handed out as free eclipse viewers to hundreds of locals in a practice he continued during 17 future eclipse expeditions.
Tut patented aluminized Mylar as a solar filter and founded a small company to sell his Solar Skreen to amateurs. Eventually he added other products and quit his day job as an engineer at a welding company to run the business full time. Tut presaged the future when he introduced the first computer-pointed amateur telescope in the early 1980s, though the unit was never a commercial success. Tuthill's business was scaled back in recent years as he entered semiretirement. According to his wife, Nancy, the business will continue selling Solar Skreen and other small products.

Tut was proactive in his support of several amateur organizations, including the Springfield Telescope Makers in Vermont, where he was a fixture at the club's annual Stellafane convention for three decades. For the thousands of amateurs who met Tut there and at other gatherings in North America or during his globetrotting eclipse expeditions, he will be best remembered for his strong handshake and warm, smiling greeting whether he was meeting someone for the first or 500th time. He truly was, as his company's slogan proclaimed, everyone's astronomical friend.

General Topics

Solar Eclipses on Other Planets

From: Newyorkbay@aol.com To: solareclipses@aula.com Sent: Friday, December 01, 2000 10:34 PM Subject: [SE] Solar Eclipses on Other Planets?

Is there any evidence that the relationship between the size of our moon & sun, and the distances between the two and Earth, are a mathematical "constant" in nature? That is, if someone could stand on the surface on another planet, would they also see "perfect" solar eclipses where the relative sizes of the sun & local moon(s), and the relative distances cause that moon to "fit" nearly perfectly "over" the sun? This has been really puzzling me lately, thanks for your help - Dawn Marie

From: Evan Zucker

I'm not a scientist, but nearly everything I've read indicates that the answer is no. So far as I know, it is simply a coincidence that the sun is 400 times larger than the moon and is 400 times more distant.

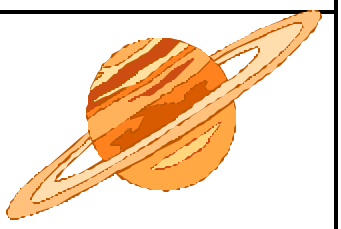
I believe I read one theoretical scenario that perhaps this ratio has some bearing on the existence of the human race, but that would not make it a mathematical constant.

>>That is, if someone could stand on the surface on another planet, would they also see "perfect" solar eclipses where the relative sizes of the sun & local moon(s), and the relative distances cause that moon to "fit" nearly perfectly "over" the sun?

It's certainly possible, but it would require a coincidence in the sizes and distances of the local moon and sun. Evan H. Zucker

From: Michael Simmons <msimm@ucla.edu>

Since there have been discussions on this list about solar eclipses as viewed from other planets I thought the following might be of interest. This will be (as far as I know) our first close-up look at a total solar eclipse and it's effect on another body in the solar system (other than our own Moon, of course).



MEDIA RELATIONS OFFICE JET PROPULSION LABORATORY CALIFORNIA INSTITUTE OF TECHNOLOGY NATIONAL AERONAUTICS AND SPACE ADMINISTRATION PASADENA, CALIF. 91109 TELEPHONE (818) 354-5011 http://www.jpl.nasa.gov

Contact: Guy Webster (818) 354-6278 FOR IMMEDIATE RELEASE December 27, 2000

BIG MOON NEAR JUPITER WILL BE IN THE DARK WHEN SPACECRAFT VISITS

When NASA's Galileo spacecraft zips past Jupiter's moon Ganymede on Dec. 28, Ganymede will have slid into the shadow of Jupiter, giving scientists an excellent chance to examine faint but informative glows that would be overwhelmed by sunlight at other times.

"By timing the encounter to happen while Ganymede is in eclipse, we're putting Galileo in the right place at the right time to see auroras," said Dr. Eilene Theilig, deputy project manager for Galileo at NASA's Jet Propulsion Laboratory, Pasadena, Calif.

In its 29th orbit of Jupiter since arrival five years ago, the durable spacecraft is on course to pass about 2,300 kilometers (about 1,430 miles) above the surface of the darkened moon 25 minutes after midnight, PST (3:25 a.m., EST). Galileo last visited Ganymede in May, when it passed within about 800 kilometers (about 500 miles) of the surface, collecting information that scientists announced this month they see as evidence for a liquid ocean hidden under Ganymede's surface. The Dec. 28 flyby will be a special opportunity to study what's above the surface.

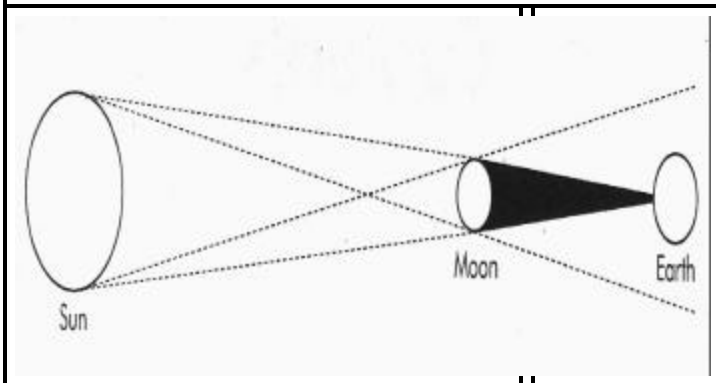
With direct sunlight blocked by Jupiter, scientists expect to see shimmering auroras on Ganymede, comparable to Earth's Northern Lights. "The auroral glows we plan to observe

(Continued on page 19)

Is there any evidence that the relationship between the size of our moon & sun, and the distances between the two and Earth, are a mathematical "constant" in nature?

General Topics

Solar Eclipses on other Planets



occur because Ganymede has a very tenuous atmosphere of gases," said Dr. Torrence Johnson, Galileo project scientist at JPL. "When these gases are hit by electrons from Jupiter's radiation belts, they glow. It's similar to what goes on in a fluorescent light bulb when you turn on the electricity."

Studying Ganymede's aurora could provide information about the chemical makeup of gases in Ganymede's atmosphere and also about Ganymede's magnetic field. Ganymede is not only the largest moon in our solar system, it is the only one known to have its own internally generated magnetic field. Paths of electrons approaching Ganymede from Jupiter's radiation belts are determined by lines of magnetic force, so the location of the glows triggered by those electrons reveals something about the shape of the magnetic field around the moon, Johnson said.

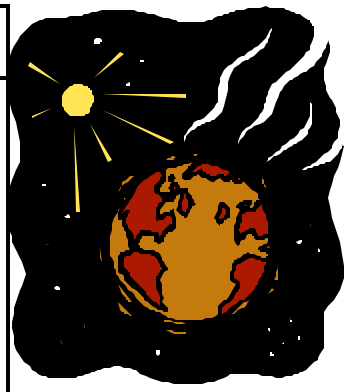
Galileo's trajectory for the Ganymede flyby will give the orbiter an exposure to Jupiter's intense radiation belts, said Jim Erickson, project manager for Galileo at JPL. With extensions to its original two-year mission, Galileo has survived three times the cumulative radiation dose it was designed to tolerate. Some of its 12 scientific instruments have been impaired by the radiation to varying degrees, but the spacecraft is still returning valuable scientific information. The effects of additional exposure next week cannot be predicted with certainty, Erickson said.

More information about the Galileo mission is available at http://galileo.jpl.nasa.gov .

Galileo is collaborating with NASA's Cassini spacecraft on several studies of Jupiter and its surroundings this fall and winter, while Cassini passes Jupiter for a gravity boost toward its 2004 appointment with Saturn.

JPL, a division of the California Institute of Technology in Pasadena, manages Galileo and Cassini for NASA's Office of Space Science, Washington, D.C. Cassini is a cooperative project of NASA, the European Space Agency and the Italian Space Agency.

[NOTE TO BROADCASTERS: A video file with animation to accompany this release will air today on NASA Television at 6 p.m. and 9 p.m. Eastern Standard Time. NASA Television is broadcast on GE-2, transponder 9C, C-Band, located at 85 degrees West longitude. The frequency is 3880.0 MHz. Polarization is vertical and audio is monaural at 6.8 MHz. For general questions about the NASA Video File, contact: Fred Brown, NASA Television, Washington, D.C. (202) 358- 0713.]



Studying Ganymede's aurora could provide information about the chemical makeup of gases in Ganymede's atmosphere and also about Ganymede's magnetic field.

Time between Solar Eclipses at one location

From: Sheridan Williams <sheridan@clock-tower.com> To: <SOLARECLIPSES@AULA.COM> Sent: Wednesday, December 13, 2000 12:26 PM Subject: [SE] Time between solar eclipses at one location

13 years without any solar eclipse is quite rare. At my home location (the Midlands of "Old" England) we had none between 1983 and 1993, and this was the longest gap I found in 3000 years. Sheridan Williams

General Topics

Umbraphile S/W Release

From: Glenn Schneider <gschneider@mac.com> To: <SOLARECLIPSES@AULA.COM> Sent: Tuesday, December 19, 2000 5:53 AM Subject: [SE] UMBRAPHILE S/W Release (for TSE 2001 and beyond...)

FYI, I have released a new version of UMBRAPHILE for general distribution. This is still an "alpha" release, but it has undergone fairly extensive testing, and is stable and robust. If you should find any problems, though, please let me know. Also note that along with a new email address (gschneider@mac.com), I am using a new web server domain, so please update any old bookmarks or addresses. You can find the updated UMBRAPHILE at:
http://balder.prohosting.com/stouch/UMBRAPHILE.html

By way of a BRIEF explanation (if you are unfamiliar with UMBRAPHILE), allow me to simply say:
"UMBRAPHILE is a FreeWare Macintosh application designed for solar eclipse aficionados. UMBRAPHILE serves two purposes. First, you can use UMBRAPHILE to determine the centerline and localcircumstances of total and annular solar eclipses, local circumstances for partial solar eclipses, or for the partial phases of total and annular eclipses. Second, UMBRAPHILE will allow you to use a MacOS computer to control a camera through a VERY simple electro-mechanical interface and have it automatically take photographs of a solar eclipse for you. No more wasting those precious seconds of totality fumbling around with camera equipment. Sit back, relax, and let UMBRAPHILE do the work for you. "
... but please see the above web site for much more detail, and to download the S/W. Clear skies and good seeing, Glenn Schneider
From: Joel M. Moskowitz, M.D. <moskowi@attglobal.net> Glenn, Is this different from the previous alpha that you had on your rtd server, or is this an announcement to show that it is now on the new server? Joel M. Moskowitz, M.D. 7 (total) eclipses and counting

From: Glenn Schneider <gschneider@mac.com>

Both. There a number INTERNAL changes, but none to the user interface, so you would never know it by running it. Most are very small and were just to "clean up" some rough spots in the code. Also, as you note, to let others know of my new server address.

So far, no problems have been reported. No wthat I've said that... -GS-

From: FRED ESPENAK <u32fe@lepvax.gsfc.nasa.gov> To: <SOLARECLIPSES@AULA.COM>; <eclipse@hydra.carleton.ca> Sent: Monday, December 04, 2000 9:41 PM Subject: [SE]

SENL October and December 2000 NOW ONLINE!

Patrick and Joanne are back at work preparing more issues of the SENL (Solar Eclipse Newsletter). The October and December 2000 issues are now online in pdf format on the SENL index page of MrEclipse.com:
http://www.mreclipse.com/SENL/SENLinde.htm

The October issue is in the old format (no color, no figures or photos) However, the December issue is in the new format which debuted last month with the November issue. It contains graphics, photos and illustrations as well as all the latest communications from the SEML.

Please note that you will need Adobe Acrobat Reader to read and/or print pdf format files. However, Acrobat Reader is readily available and can be downloaded free from Adobe's web site (http://www.adobe.com/). - Fred Espenak

General Topics—TOTAL LUNAR ECLIPSE JAN 09 2001

Web Page for Total Lunar Eclipse 2001 Jan 09

From: FRED ESPENAK <u32fe@lepvax.gsfc.nasa.gov> To: <SOLARECLIPSES@AULA.COM>; <eclipse@hydra.carleton.ca> Sent: Tuesday, December 19, 2000 9:52 PM Subject: [SE] Web page for Total Lunar Eclipse 2001 Jan 09

I have just posted a new web page devoted to the total lunar eclipse of 2001 January 09. It includes maps, figures and tables giving information about the visibility of the eclipse world-wide. The event will be best viewed from Europe, Africa and Asia.

The web page URL is: http://sunearth.gsfc.nasa.gov/eclipse/SEextra/TLE2001Jan09.html

Please take a look and let me know of any typos of bad links. Thanks! - Fred Espenak

From: Cees Bassa <c.g.bassa@phys.uu.nl>

Hoi List,

Fred's link should read:

http://sunearth.gsfc.nasa.gov/eclipse/extra/TLE2001Jan09.html

Though many of you will have gotten there over his homepage.

Regards, Cees Bassa

P.S. All people in the US and Canada, I wish you clear skies on Christmas day for the eclipse!

From: FRED ESPENAK <u32fe@lepvax.gsfc.nasa.gov>

My previous message about the new web page for the Total Lunar Eclipse of 2001 Jan 09 gave the wrong URL address. The correct address is:

http://sunearth.gsfc.nasa.gov/eclipse/extra/TLE2001Jan09.html

Thanks to everyone who called this to my attention. Please take a look and let me know of any typos of bad links. - Fred Espenak

Has anyone on this mailing list succeeded in seeing all three eclipses of any previous triads?

From: FRED ESPENAK <u32fe@lepvax.gsfc.nasa.gov> To: <SOLARECLIPSES@AULA.COM>; <eclipse@hydra.carleton.ca> Sent: Tuesday, December 19, 2000 10:10 PM Subject: [SE]

Viewing the Total Lunar Eclipse 2001 Jan 09

Pat Totten and I will be traveling to Athens, Greece next month to observe the total lunar eclipse of 2001 Jan 09. This will be the third eclipse of a triad (3 consecutive total lunar eclipses) which includes eclipses of Jan. 20, 2000 and July 16, 2000.

Has anyone on this mailing list succeeded in seeing all three eclipses of any previous triads? Has anyone tried?
Some previous triads of the past 20 years are:

1) 1992 Dec 09. 1993 Jun 04, 1993 Nov 29
2) 1989 Feb 20, 1989 Aug 17, 1990 Feb 09
3) 1985 May 04, 1985 Oct 28, 1986 Apr 24 and 1986 Oct 17 (4 totals in a row!)
4) 1982 Jan 09, 1982 Jul 06, 1982 Dec 30

Is anyone planning to be in Athens for the January eclipse? (I assume that all our European, African and Asian members will be watching from their homes).

Let me know if anyone will be in the Athens vicinity. Thanks! - Fred Espenak

GENERAL TOPICS

Non-spherical Sun and / or Moon?

From: FRED ESPENAK <u32fe@lepvax.gsfc.nasa.gov> To: <SOLARECLIPSES@AULA.COM> Sent: Wednesday, December 06, 2000 5:12 PM Subject: Re: [SE] Non-spherical Sun and/or Moon

>Q1. I was wondering: how non-spherical are the Sun and or the Moon?

>Q2. If they have elliptical instead of exactly circular discs as viewed from Earth does this make any difference in predicting the times of the four contacts?

>Q3. If their two ellipses have inclined major axes, is it possible for an eclipse to be 'hybrid' in the sense that it is total along one 'diameter' while being still annular in another 'diameter'?

The Sun is spherical to within the limits of the best quality observations. The Moon's mean equatorial and polar diameters do differ by several kilometers. However, the surface topography (i.e. limb profile) is significantly greater so that it plays the major role in contact times and whether an eclipse is total, hybrid or annular.

>Q4. What are the definitive authorities for the shape and size of the Sun and Moon?

According to the IAU, the Moon's mean radius is 0.2725076 times that of Earth's mean radius.

So:
Radius of Earth = 6378.160 km
Radius of Moon = 1738.10 km

Note that the Moon's radius varies by 5-10 kilometers over different position angles due to lunar mountains and/or valleys.

The following data appears on NASA's Moon Fact Sheet:

Bulk parameters

	Moon	Earth	Ratio (Moon/Earth)
Mass (10**24 kg)	0.07349	5.9736	0.0123
Volume (10**10 km3)	2.1973	108.321	0.0203
Equatorial radius (km)	1738	6378	0.2725
Polar radius (km)	1735	6356	0.2730
Volumetric mean radius (km)	1737.5	6371	0.2727
Ellipticity	0.002	0.0034	0.588
Mean density (kg/m**3)	3340	5520	0.6051
Surface gravity (m/s**2)	1.62	9.78	0.166
Escape velocity (km/s)	2.38	11.2	0.213
GM (x 10**6 km**3/s**2)	0.0049	0.3986	0.0123
Bond albedo	0.067	0.385	0.174
Visual geometric albedo	0.12	0.367	0.327
Visual magnitude V(1,0)	+0.21	-3.86	-
Solar irradiance (W/m882)	1380	1380	1.000
Black-body temperature (K)	274.5	247.3	1.110
Topographic range (km)	16	20	0.800
Moment of inertia (I/MR**2)	0.394	0.3308	1.191

Q4. “What are the definitive authorities for the shape and size of the Sun and Moon?”

(Continued on page 23)

GENERAL TOPICS

Non-spherical Sun and / or Moon? Cont……

Orbital parameters (for orbit about the Earth)

	Moon
Semimajor axis (10**6 km)	0.3844
Perigee (10**6 km)	0.3633
Apogee (10**6 km)	0.4055
Revolution period (days)	27.322
Synodic period (days)	29.53
Mean orbital velocity (km/s)	1.023
Orbit inclination (deg)	5.145
Orbit eccentricity	0.0549
Sidereal rotation period (hrs)	655.728
Equatorial inclination (deg)	6.68
Recession rate from Earth (cm/yr)	3.8

"It turns out that the discussion was very important for Einstein's General Theory of Relativity"

- Fred Espenak

From Jay Pasachoff:

The sun is perfectly round, to well within any measurement error. An experiment done by Dicke and his students in the 1960s purported to find an ellipticity of 35 km out of 1 million, but it turns out that the effect was actually caused by faculae on the limb and that any ellipticity of the sun is undetectable. Leon Golub and I describe this in our book "The Solar Corona" (Cambridge University Press, 1998). So any variations in the eclipse timings come from the figure and Baily's beads of the Moon. Jay Pasachoff

From: Evan Zucker

I'm a little surprised to learn that because I would have expected that the centrifugal force created by the sun's rapid rotation would cause a small equatorial bulge. I'm guessing that the effect of the centrifugal force is not sufficient to overcome the sun's vast gravity, which forces the gases to retain a spherical shape. Evan H. Zucker

From Jay Pasachoff:

It turns out that the discussion was very important for Einstein's General Theory of Relativity. The centrifugal force from the Sun's 25-day rotation isn't enough to make even the 35-km bulge that Dicke and colleagues mistakenly thought they had found. They invoked a rapidly rotating core of the Sun, with a 4-day rotation period, to provide the 35-km bulge. But that 4-day rotation period had an effect on the advance of the perihelion of Mercury, whose 43 arcsec/century advance (a change in the orientation of Mercury's elliptical orbit) had been one of the underpinnings of Einstein's theory. So they deduced that Einstein's General Theory of Relativity wasn't general enough, and Dicke had an extended theory waiting! But when the bulge was disproved (it turned out that the Sun was merely slightly brighter at the equator, rather than larger), Dicke's theory wasn't needed. It was an interesting episode in the history and philosophy of science. Jay Pasachoff

Accommodation Eclipse

From: Patrick Poitevin To: SE Mailing List Sent: Monday, December 04, 2000 7:48 PM Subject: [SE] Fw: Accommodation Eclipse 2001

Dear All, For accommodation in Zambia, please contact the address below direct. Do not send replies to the SEML or to me. Best regards, Patrick

----- Original Message -----
From: ibis To: Patrick_Poitevin@hotmail.com Sent: Saturday, December 02, 2000 3:52 PM Subject: Accommodation Eclipse 2001

Dear Patrick, I write to you from Ibis Gardens Country Hotel Zambia.

Ibis is one of Zambia's favourite Leisure and Business retreats and is situated on the eclipse line, in Chisamba, approximately 70Km form the capital Lusaka. The hotel is set in 18 hectres of indigenous woodland and has a magnificent swimming pool, bar, restaraunt and cafe. Although we are fully booked for the eclipse we are now offering prospective gues ts two alternatives.

1. We will be offering camping facilities at Ibis Gardens, with toilet and ablusion facilities.

2. We have recently opened another hotel 60kms north of Ibis Gardens, in the town of Kabwe (which is still on the eclipse line but not as central as Chisamba). The Hotel is 3*, has 33 rooms plus 3 suites. On the day of the eclipse we will be arranging transport to Chisamba and back to Kabwe. Lunch on the day will be at Ibis Gardens, where there will be music, entertainment etc. At present I have not taken any bookings for the eclipse at Tuskers (the Kabwe Hotel's name).

I think the interest in the eclipse 2001 has taken myself and fellow Hoteliers in Zambia a little by suprise. I have had requests for accommodation from all over the world (especially America), but due to the fact that myself (General Manager), and three of the Directors of Ibis Gardens are from the UK, we thought it would be nice to offer this to the UK first (I found your contact on the internet). I don't no whether you or your readers will be interested? If not maybe you could point me in the right direction.

I hope your plans for the eclipse are going well and I look forward to hearing from you. Kind regards John Dyke

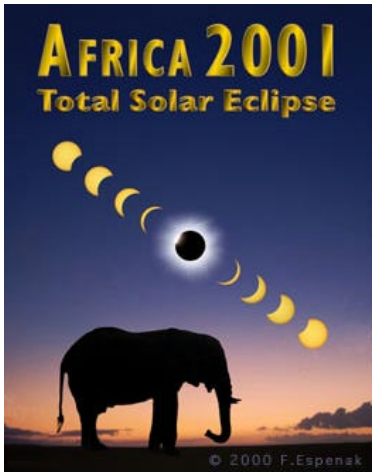
AFRICA 2001

COMMEMORATIVE 2001 ECLIPSE T-SHIRT

From: FRED ESPENAK <u32fe@lepvax.gsfc.nasa.gov> To: <SOLARECLIPSES@AULA.COM>; <eclipse@hydra.carleton.ca> Sent: Friday, December 01, 2000 4:42 PM Subject: [SE] Commemorative 2001 eclipse T-shirt

I've designed a special T-shirt to commemorate the 2001 African eclipse. You can see it at: http://www.mreclipse.com/Store/Tshirt2001.html

Gary Spears and I are going to give these shirts to everyone on our 2001 eclipse tour (http://www.spearstravel.com/Africa01.htm). If your group is interested in ordering shirts for your members, please contact me about volume discounts. Thanks! - Fred Espenak



Eclipse Land Cruise for the 2001 African trip FYI

From: <Orionman1@aol.com> To: <undisclosed-recipients:;> Sent: Sunday, December 10, 2000 5:19 PM Subject: [eclipse] Eclipse Land Cruise for the 2001 African trip FYI

from: Dr. Eric Flescher (KCStarguy@aol.com) - webmaster Eric's Black Sun Eclipse

Eclipse Land Cruise for the 2001 African trip http://mayhugh.com/train/train.htm

This 10 night, 11 day Program begins in Cape Town, SA. Next it's off to Bulawayo, Zimbabwe to join the Zambezi Steam Train, "Southern Cross". You'll travel through Zimbabwe to the Hwange Game Preserve for a special game drive, then to Victoria Falls for a visit to one of the seven wonders of the world. Finally it's north to Lusaka,Zambia where you'll view the eclipse on the centerline north of the City on a private farm. You'll have your own private cabin on the train (some with toilet and shower). In the daytime it's off to complimentary all day excursions and then it's back to the train. The trains dining cars offer three meals a day, all included in the price, just like a cruise. It is convenient, un-pack and pack once. It is safe and secure, and the whole train is chartered for this trip. The food is scrumptious, the service impeccable. The perfect family eclipse vacation. UPDATE - Emerald Class is full - there are still a few Ivory Class cabins available. There will be special eclipses and astronomylectures and sessions with topics and help to prepare for the eclipse, as well star parties and observing sessions and much more. Price for the Eclipse Land Cruise begins at $4,999 per person and is based on double occupancy. This price is for the basic package which uses the Portswood Hotel in Capetown and Ivory Class twin cabin with shared facilities. Hotel and train upgrades are available at additional cost. However, these costs are still being determined and will be published here when finalized. There will be an additional charge (single-supplement) for those people occupying a cabin alone and there will be a discount for third and fourth person occupying a cabin. These prices are not yet set. They will be published at the website when finalized. The price includes coach-class round-trip airfare from Atlanta and all transportation while in Africa. Also included are all transfers.

To find out further information contact Roy roy@mayhugh.com Mayhugh Travel • 701 Perdew Ave • Ridgecrest, CA 93555 Toll Free (888) 412-5317 • Fax (760) 446-0049 or http://mayhugh.com/train/train.htm

"The food is scrumptious, the service impeccable. The perfect family eclipse vacation.

AFRICA 2001

The 2001 Total Solar Eclipse Over Zambia: Local Plan of Action"

From: Daniel Fischer <dfischer@astro.uni-bonn.de> To: <eclipse@hydra.carleton.ca> Sent: Sunday, December 10, 2000 8:45 PM Subject: [eclipse] "The 2001 Total Solar Eclipse Over Zambia: Local Plan of Action"

The complete paper that Peter Kalebwe presented in Antwerp can now be read at http://www.astro.uni-bonn.de/~dfischer/2001/kalebwe.html - I'm not aware of any further developments, and the homepage of the Zambian Eclipse Coordination Committee at http://homepages.go.com/

Joanne & Patrick

Solar Eclipse Mailing List

WE'RE ON THE WEB AT
http://www.Mr.Eclipse.com/SENL/SENLinde.htm

VISION STATEMENT

THE **SOLAR ECLIPSE NEWSLETTER IS A MONTHLY NEWSLETTER ABOUT SOLAR ECLIPSES EDITED BY PATRICK POITEVIN & JOANNE EDMONDS. FINANCIAL SUPPORT FROM RAINBOW SYMPHONY.**

THE ELECTRONIC VERSION OF THE SOLAR ECLIPSE NEWSLETTER IS AVAILABLE ON THE WEB PAGE OF FRED ESPENAK. THE SOLAR ECLIPSE NEWSLETTER IS FREE OF CHARGE, BUT IS NOT AVAILABLE IN HARD COPY.

Solar eclipses from Ayers Rock—2002

Solar eclipses from Ayers Rock by PP.

Preparing for Australia 2002? Observing a solar eclipse from a mountain is beautiful. It allows you to see the umbra arrive. Ayers Rock in Australia would be a beautiful observation site for total solar eclipses.

From the year 0 to 4000 there would be some 15 total solar eclipses. The last total solar eclipse there was on 19th May 1547. The next will take place on 13th July 2037. Setting foot on Ayers Rock would mean bad luck according to the culture of the Aboriginals. Be comforted, 13th July 2037 does not fall on a Friday, but on a Monday. Some 50 years later on, on 22nd May 2077, there will be another total solar eclipse. The next annular solar eclipse will take place on 29th July 2288, the last one over there was on 15th November 1724.

On 16th February 1999, the annular solar eclipse could be seen there with a magnitude of 0.893. The next partial solar eclipse will be on 10th June 2002 with a magnitude of 0.120. When the path of the total solar eclipse over Australia ends on 4th December 2002, the magnitude on Ayers Rock will amount to 0.796.

Persons acquainted with Ayers Rock, know that sunrise or sunset show strange colour effects of the rock. A solar eclipse over there still must be drearier. The Arunta Aboriginals from the central desert region in Australia believe that the moon is associated with love and fertility and that girls are warned not to look at it if they don't want to get pregnant. They believe that the sun is in love with the moon and is hunting for it each day in the sky. An eclipse occurs when the sun catches its everlasting love and their union is a fact, an event that is celebrated with a lot of festivities.