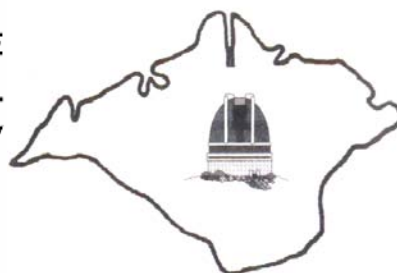


# THE NEW ZENITH

THE MONTHLY  
MAGAZINE OF THE  
VECTIS ASTRONOMICAL  
SOCIETY



VOLUME 14 No 2

MARCH 2006

## GLAD TIDINGS

**I've confirmed with our bank that the 'Awards for All' Grant of £2091 was credited to our account this morning.**

Just a quick note to let you know that I paid the £64 into Dennis's account at lunchtime. I've also dropped Dennis a note to let him know that it's gone in.

I would like to thank members and guests attending the January meeting for the generous payments into the raffle and refreshment takings. We raised a total of £64 which has now been paid into Dennis's bank a/c for use in the earthquake zone of Pakistan. I know that this will be much appreciated. WELL DONE!!!

The above three paragraphs popped into the Editorial e-mail In Box recently, all from VAS Treasurer, Graham Osborne. The AfA award is largely due to Rosemary Pears' persistence in wrestling with the application forms that a mere mortal would have shredded in frustration long before reaching the dotted line awaiting the applicant's signature. It was not an easy ride, especially when the initial application was rejected over a single word: 'retired', written after the chosen local referee had filled in all her details of her career in Education. Since VAS were requesting funding for a new laptop computer, digital projector and spare lamp, all to be used for our continuing programme of taking Astronomy out to Island communities including schools and youth groups, we had to supply the name of someone qualified in education matters to vouch for our using the new equipment as described in the Application. Our would-be referee was more than adequately qualified but was recently retired from full time teaching. Not fitting AfA's criteria, the form was returned marked for Rosemary's attention. Enter John

Smith - he was able to drag in a willing teacher friend who fitted the job description for a VAS referee one hundred percent. Rosemary was pointed back at another set of questionnaire pages and, within a period of some breath-holding weeks, came the welcome announcement that this time she had cracked it! Deep joy within the VAS Executive Committee, you may be assured.

If that was not enough, the request for a grant to purchase some fold-up tables similar to those used at the Parish Centre in Newport, to be housed at the Observatory in replacement of the ancient ones (from a long disestablished Civil Service Department) we currently bang our shins on, has been sanctioned. Money from last year's Garlic Festival takings has been shared out within the Parish by the Newchurch Parish Sports and Community Association (NPS&CA), and VAS has been fortunate in being allotted a very useful £400. To those responsible for obtaining this grant, very many thanks indeed.

Rosemary reminds me that we have now received approximately £15,000 over the past 4 years from Awards for All, and we are immensely grateful to them.

Unless you, the Reader, have been living in obscurity in some uninhabited spot such as those mid-ocean islands where the locals try to disable helicopters with poisoned arrows, you will be aware that Rosemary has been Secretary to the VAS for the best part of nine years and during her spell of keeping us all in check as a Society we have gone from strength to strength.

Now that she has handed back her official quill pen and blotting pad she can sit back and enjoy a very well earned rest and start to concentrate on all the stuff 'up there' that Roger Hayward keeps banging on about down at the Observatory!

For all your efforts on our behalf, the unwashed and unwilling at times, Rosemary please accept our most sincere thanks for a job well done.

*VAS Director Astronomy Services*

## FROM THE EDITOR

Dear Readers

If you can remember way back to the dim past, i.e. last month, you may just recall that an election was to be held for deciding who the replacement would be for Rosemary Pears' post of VAS Secretary. Your proposals were called for, to arrive no later than February 16th. Well, time's up and the bulging mailbag has got to be opened. Oh dear! Not a single nomination, other than those from the Executive Committee members, has flooded in. Can it be that nobody out in darkest Wight cares about this thriving Society of ours and how it is organised? As Sir Winston Churchill might have put it: 'Never in the field of astronomic events have so many achieved so little in doing their bit for the VAS.'

Just remember, the elderly fogies of your Society's management team are not getting any younger and it just could come to pass that the last one to fall off their chair at one of the not-too-distant meetings will find it difficult to turn off the lights.

It bears thinking about!



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### NEXT MONTH'S LECTURE

## The Sun A Biography

Dr. David Whitehouse

**March 24th**  
**7:30pm**  
In the Parish Hall  
Town Lane  
Newport

### DON'T FORGET

**BRITISH SUMMER  
TIME IS BACK THIS  
MONTH**

**CLOCKS GO  
FORWARD ONE HOUR**

### March 2006 Subscriptions

Will the following members please note that their subscriptions are now due. As usual, all cheques should be made payable to the Vectis Astronomical Society and sent to my Winford address.

Thank you

**John W Smith, 27 Forest Road,  
Winford, Sandown,  
IoW. PO36 0JY**

70	Mr D. Mc Pherson	£13
197	Mr D. Farley	£17
267	Mr B. Bond	£13
288	Mr J. Underwood	£13
290	Mr R. Somers	£17
307	Mr D. Miller	£17
329	Mr F. Hetherington	£17
334	Mr D. Brewin	£13
335	Mr C. Withers	£17
359	Mr M. Cahill	£13
365	Mr A. Stewart	£17
368	Mr M. Stewart	£7
369	Mrs D. Stewart	£17
395	Prof. B. Davis	£13
396	Mrs A. Cahill	£13

## The Black Arrow and its Satellites

Jim Scragg (Reported by Roger Young)

In the 1950's and the 1960's, Britain had a healthy space programme and technology comparable with the American and Russian programmes. Black Knight was designed to test the capability to launch a ballistic missile and test the atmosphere re-entry capability. A ballistic missile launched against an enemy nation will leave the atmosphere during its trajectory and at this time it was not known whether re-entry would be straightforward or like skipping a stone across water. Also would the re-entry vehicle burn up during the descent phase?

Manufacture and testing of the rockets took place in the UK with the test firings at Highdown, near Alum Bay on the Isle of Wight. These firings were designed to test the rocket motors without actually launching the vehicle. Following successful tests, actual launches were conducted from the Woomera Range in Australia.

In all, 22 launches were made and provided vital information relating to re-entry characteristics; heating of the re-entry vehicle, and communications between ground station and the missile. A range of materials was used to test their capability to withstand the re-entry conditions.

By 1963, the initial programme had been completed and a series of satellite launches planned. However, the government of the time initiated a series of cutbacks, eventually cancelling the whole project in 1969. Despite this, the project team managed to continue for a short time and launched two satellites. The first launched was Prospero on 28<sup>th</sup> October 1971. This was basically a technology demonstrator to prove the capability to get a satellite into orbit and operate a few experiments.

### Structure of Prospero

The technological experiments were to perform the following functions:

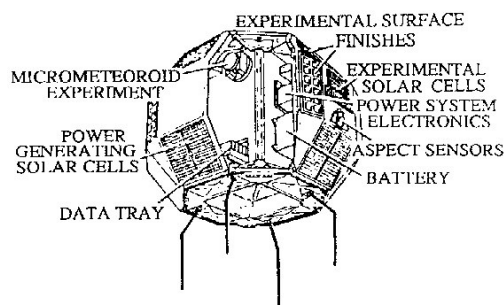
To prove in orbit the performance of a number of new thermal control surfaces.

To prove in orbit the performance of a number of thin silicon solar cells and various types of cover glass.

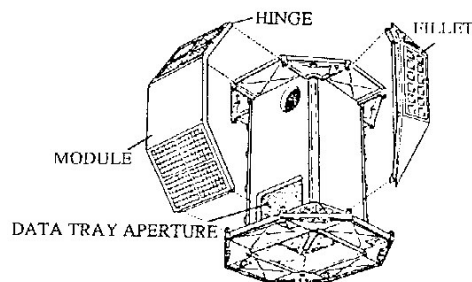
To prove the space worthiness of multi-chip integration electronic assemblies.

To demonstrate new developments of common user equipment.

The satellite proved highly successful and operated continuously until it was turned off in 1989.



PROSPERO



The second satellite was Miranda, launched on 4<sup>th</sup> March 1974. This was to provide the basis for observation satellites and military communication satellites.

### Structure of Miranda

The experiments included on the spacecraft were:

Attitude control logic using a model of the satellite dynamics and gas jets alone.

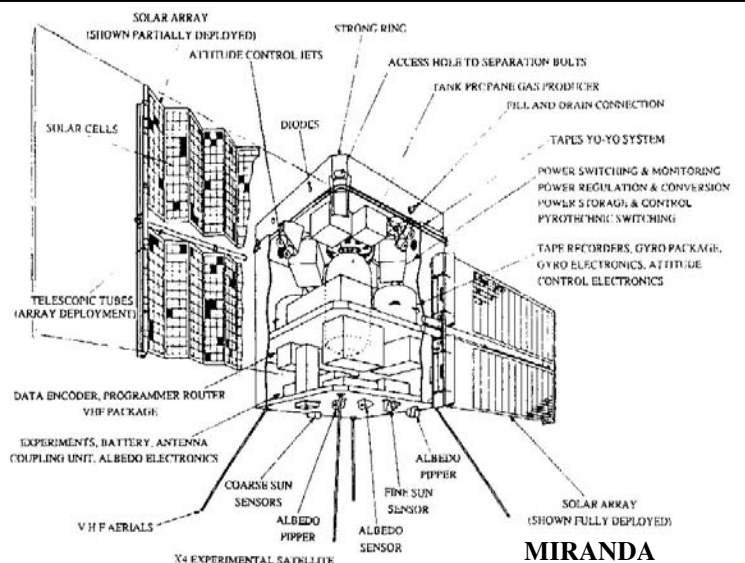
An infra-red horizon detector.

A Canopus star sensor.

An Earth albedo sensor with digital output.

Two patches of 5mil thick silicon solar cells.

Again, the satellite proved a success. However, this was to be the end of Britain's space programme as an independent nation. The legacy of the programme can be seen in the involvement with ESA and much of the technology in the current launch vehicles can be traced back to Black Knight.



# March Skies

John W Smith

## The Planets

**Mercury** The excellent apparition we had last month has gone as the planet moves into inferior conjunction.

**Venus** drops to the eastern horizon and remains very low in the pre-dawn sky for several weeks.

**Mars** continues to fade in brightness and angular size as the distance between it and the Earth increases.

**Jupiter** may be seen in the south east but it will become more prominent in the coming months.

**Saturn** is still a good object after sunset.

**Uranus & Neptune** are unfavourably placed.

## Meteor Showers

There are no major showers this month.

## Moon Phases

New	1st Quarter	Full	Last Quarter
29th	6th	14th	22nd

A partial eclipse of the Sun occurs on the morning of the 29<sup>th</sup> with maximum eclipse at 10:33hrs. (See sky map below for details).

## Deep Sky Objects for Small Telescopes and Binoculars

**M81 NGC3031** This spiral galaxy is a fairly easy object for most instruments. It is seen at an angle of some 45 degrees and a medium to large telescope is needed to resolve the spiral structure.

**M82 NGC3034** An irregular galaxy and close companion to M81 so may be seen in the same field using a wide field eyepiece. It is believed that a huge explosion occurred in this galaxy about a million years ago resulting in a large jet appearing to emanate from its centre. This jet can be seen in photographs.

**M101 NGC5457** This superb spiral in Ursa Major is quite a challenge for small instruments in spite of its quoted magnitude. This is due to its large angular size and is the integrated value of the complete object. A photograph shows the spiral structure extremely well. It may be located more easily by gently rocking the telescope across the field of view and noticing the brightness level changing. A good clear sky is really essential.

## Co-ordinates

OBJECT	RA	DEC	MAG	SIZE (ARC MINS)
M81	9h 54m	+69deg 09m	7	21 x 9.8
M82	9h 54m	+69deg 47m	9	9x4
M101	14h 03m	+54deg 27m	8	22 x 22

The **Spring Equinox** occurs on the 20<sup>th</sup> at 20:18hrs. British Summer Time starts and clocks should be put on by one hour.

On the 14<sup>th</sup>/15<sup>th</sup> there is a penumbral eclipse of the Moon when its light is dimmed by the shadow of the Earth, but the event will provide very little apparent darkness on the Moon's surface.

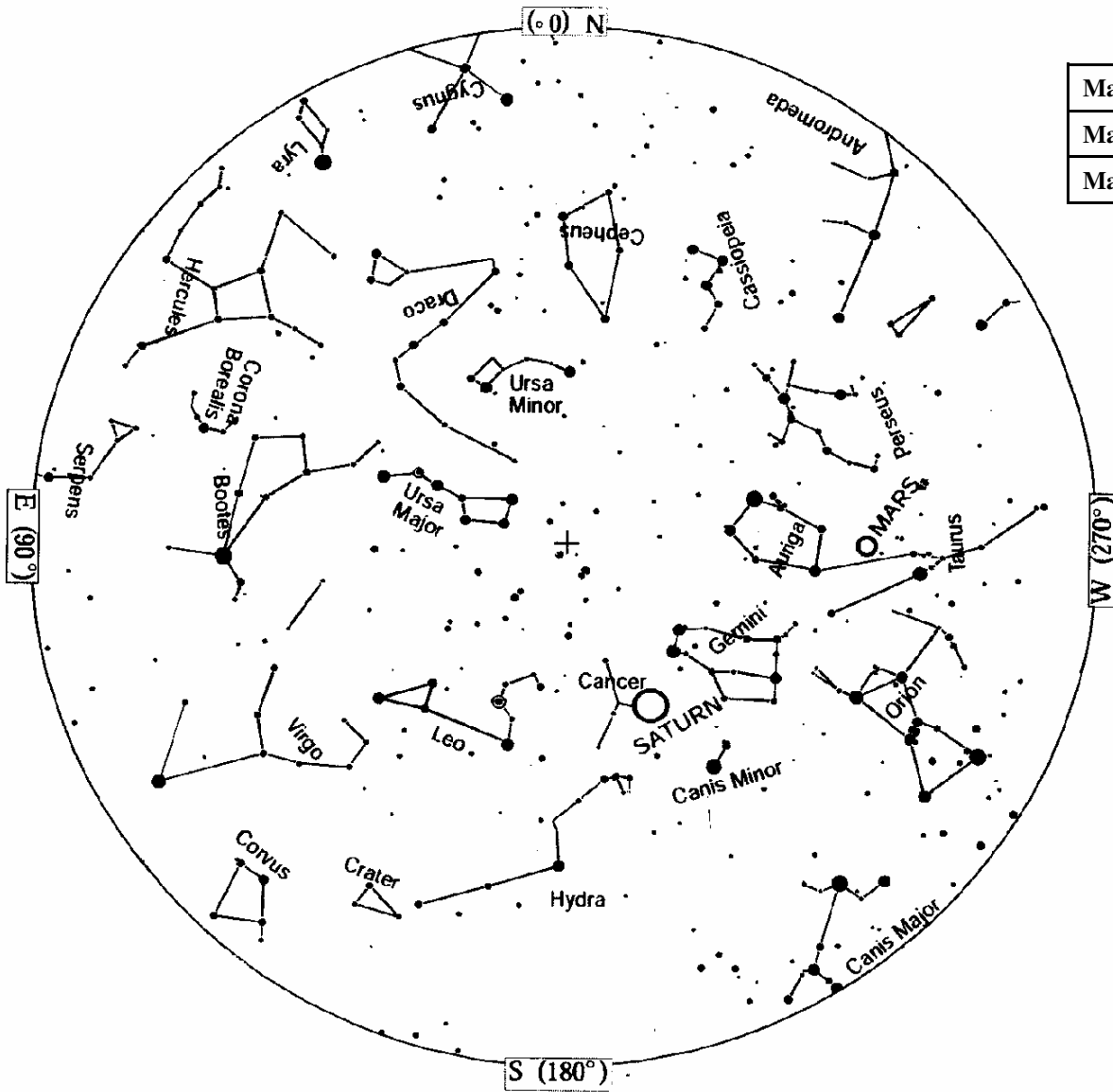
### FIRST ECLIPSE OF 2006

Penumbra eclipses are generally rather boring when compared to a total lunar eclipse or a solar version. As can be seen here, the Moon does not enter the Earth's shadow - the umbra - and so the only effect noticeable with the naked eye will be a slight dimming of the Moon's south pole.

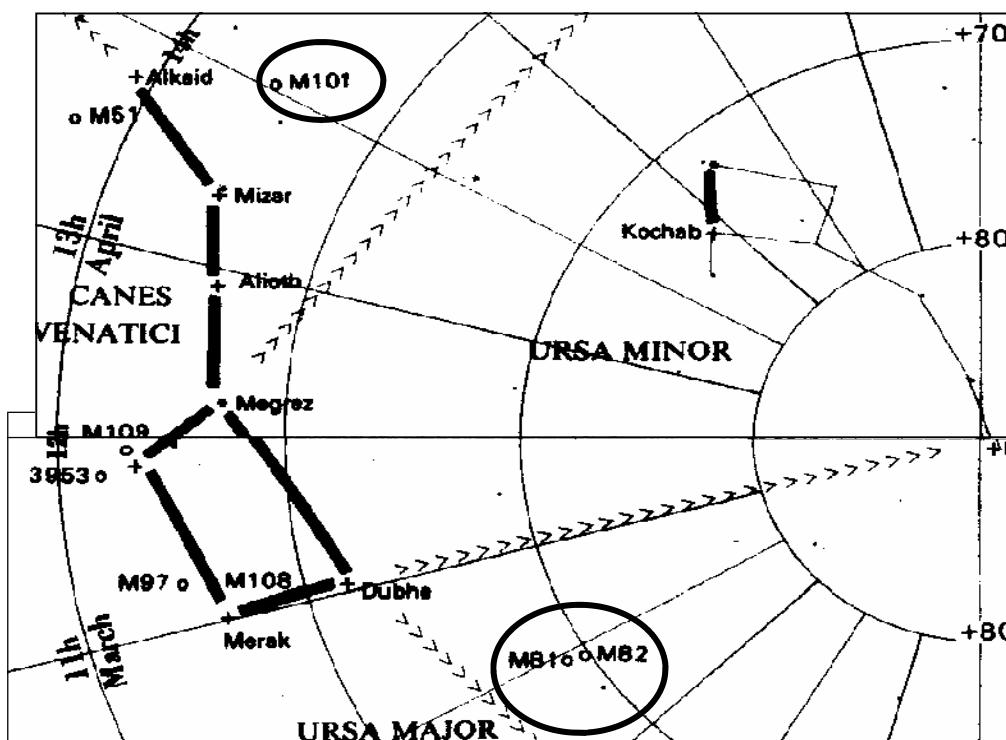
- Position 1 21:21 (on 14th)
- Position 2 23:47 (on 14th)
- Position 3 02:13 (on 15th)

### ECLIPSE NUMBER TWO

14 days after the lunar eclipse, a partial solar eclipse is visible from the UK. The event starts at 09:49 on the 29th but you will have to wait nearly an hour to see the maximum coverage of the solar disc. Observers with telescopes using the correct filters can make accurate timings of first and last contact - when the eclipse starts and ends (at 11:16). Don't forget: all times are in GMT. Add one hour for BST. **DO NOT LOOK AT SUN WITHOUT CORRECT FILTERS.**



Mar 01	at	23:00
Mar 15	at	22:00
Mar 31	at	21:00



**...and point me to the skies...**

**O**n Friday mid-morning, February 10th, I had a call from John Smith asking me to look in the County Press Deaths Announcements page. There I read that Elsie, the wife of our VAS President Ken Panteny, had passed away and her funeral service was that very day at 12:45 pm. At such short notice, John was anxious that VAS should be there in support of Ken in his sad loss.

As often happens, there was not a significant number of Members available at the time - some away on business or perhaps being pre-booked for various appointments. However, your Editor *was* available and duly arrived at the Crematorium at the last minute, no thanks to most of the Island through roads in our area undergoing an intensive renewal programme.

The service was a simple one but poignant, mainly attended by Ken's family and with a sprinkling of supporting friends. The hymn was **Abide With Me**, and in the final verse came the line which I have used to form the title to this article. It seemed to fit so well with the sadness of the occasion combining with our President's deep interest in matters celestial. Although we were not able to be there in person, Ken, please be assured that all who knew, were with you in spirit.

*John Langley*

## The Reflection of Heavenly Bodies on the Art of Creative Writing

By: Hossein Azarmer

**C**reative writing is a kind of writing which is based on the power of creativity (or imagination) of the mind regardless to documentation or historical incidents of the past. Creativity as the Encyclopaedia Britannica defined: 'the ability to make or otherwise bring into existence something new, whether a new solution to a problem, a new method or device, or a new artistic object or form'.

Story writing or the novel is the invention of the middle class (bourgeois), apparently after the French Revolution. But today, the stories of the past, parables and short stories of the ancients could be categorised as the creative writing.

Science fiction is a branch of creative writing which might be the cause of improvement of knowledge in any areas, particularly in regard to extraterrestrial journeys. Jules Verne is definitely one of the pioneers of this art. His famous book, in respect of the title of this article, called: *From the Earth to the Moon* was written in 1873.

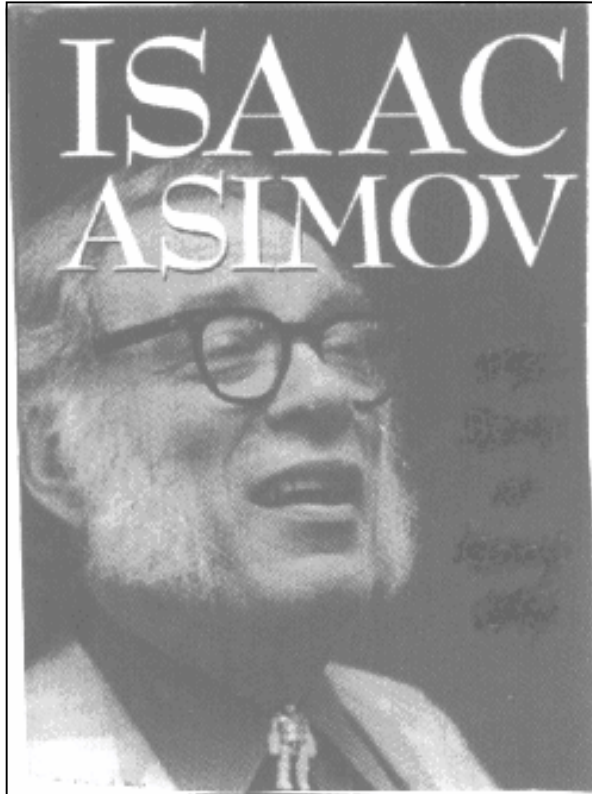
The improvement of knowledge about the stars and planets in the last century has had the strongest influence on creative writing, more than any other of the arts. Therefore, so many writers and story tellers received the peak of fame, even finance, just for touching the subject of the heavenly bodies and interstellar journeys amongst far distance galaxies. Some of them had good success in this field.

Two of the most famous ones among them are:

**Isaac P(etrovich) Asimov**; originally Russian but lived in America. He has written so many science fiction novels but those in re-

lation to the subject of the sky are:

*The Stars Like Dust* (1951), *The Currents of Space* (1952), *The Naked Sun* (1957). He won the Hugo Award.



Then **Arthur C(harles) Clarke**, who was originally English, established his life in Colombo, the capital of Sri Lanka. Two famous books of his are; *Fall of Moon Dust* (1961) and *Voices from the Sky* (1965). He went on to be awarded the Franklin Institute's Gold Medal (for originating the idea of satellite communications) and the UNESCO Kalinga Prize for science writing.

Hossein

## Photographs of an Inferior-Mirage Sunset

### The first half



First, there's the "reflection" of the lower limb of the Sun that appears at the horizon:



This is actually *not* a reflection in the ocean, but the miraged (inverted) image of the Sun's lower edge. A few seconds later (notice the motion of the bird - arrowed - to the left of the Sun!), the reflection fuses with the erect image: Here you can plainly see the line, a little above the apparent horizon, where the image "folds over" from the erect image above the line to the inverted image below it. Notice that the image is not sharply creased at this fold, but that the indentations at the foot of the Sun — the base of Jules Verne's "Etruscan vase" — are smoothly curved. That's because the image is vertically stretched there.

In fact, the stretch is infinite just at the 'fold line'. It is this vertical stretching that makes the green flash (when there is one) visible to the naked eye; without the stretch, the green rim would be too narrow to see without magnification. (Alas, this sunset was too hazy to allow the green rim to be seen, so no flash was recorded.)

After a few more seconds, the reflection forms a pair of "feet" at the lower corners of the image. These give the

whole image a shape like the capital Greek letter Omega. Notice that the "fold line" remains at a fixed altitude above the horizon as the Sun sinks down.



### The second half

About 2 minutes later, the upper edge of the Sun is approaching the horizon, and we see the upper limb miraged. The lower edge of the "American football shape" is the inverted image of the upper part. Again, notice the rounded ends, at the fold line.



**Inferior-mirage images very clearly shown above in a series of sunset pictures taken by George Kaplan, of the U. S. Naval Observatory. Visit their website for more information**



## Turkish De-Light!

Anybody wanting to observe the total eclipse on 29th March had better head for Antalya in Turkey. At this spot, totality will reign supreme and Turkey has a fairly good reputation for reliable weather. The only problem is likely to be the foregathering of clouds, caused by the cooling of the maritime climate, just as we witnessed back in 1999 near Le Havre in France. At that time Graham Osborne had instructed us to '**Stick with Plan A**' and stick we did. While other would-be eclipse viewers rushed back and forth, more and more frantically, trying to gather under a patch of clear sky, VAS Members remained calm in their chosen roadside spot and were rewarded with a magnificent view of totality. Five minutes before the Sun was fully obscured, the dense cloud cover parted and all was revealed. Wonderful! Shortly after the Moon began creeping away from the Sun, we saw the sure signs of faint Shadow Bands shimmering along long strips of white fax paper that we had stretched over the car windscreen and

bonnet. Shadow Bands are almost impossible to photograph due to their ephemeral nature, their random movements, very poor contrast under ambient bright light conditions but are most rewarding to observe. They are a phenomenon caused by almost coherent sunlight coming from the thin slit of light from the Sun when the Moon begins its retreat from the Sun's disc. As this special light reaches Earth, some will have been delayed by passing through areas of varying refractive index in the turbulent atmosphere. When the delayed and un-delayed wavefronts of light combine on the white paper, the effect is to demonstrate the reinforcement of in-phase rays and destruction of out-of-phase rays. The so-called Shadow Bands are then seen as a swirling of moiré-patterns that rapidly disperse as the Sun's aperture increases.

At least one VAS Member will be there: Barbara Allen, who lives in Telford, Shropshire, has promised to sent a full account of her experiences out there when she returns. We will look forward to hearing from her.

## Astronomer's Lament

I had a little telescope but all that I could see,  
 Was next door's brand new decking,  
 And their flowering cherry tree.  
 I twiddled this, I twiddled that, I gave it several tries,  
 But couldn't get the blinking thing  
 To focus on the skies.  
 So then I thought, on Thursday night  
 To Newchurch I will go.  
 Those lads at the Observatory  
 Know all there is to know.  
 And thanks to them I now can see  
 The stars in all their glory.  
 I still can't fold the tripod up,  
 But that's another story.

*Diana Stewart 2006*

## INTERESTING FACTS, PART EIGHTEEN

**If you look at a map of the London Underground you will discover that St John's Wood is the only station name that does not contain one or more letters of the word 'mackerel'.**

## Website of the Month

<http://brainbites.nasa.gov/snowboarder/>

American snowboarder Hannah Teter won a gold medal at the 2006 Torino Olympic Games. In an educational video she made for NASA, Hannah explains why snowboarders would make good astronauts. To watch the video, connect to the above site.

## TIME

Time is a bit of a paradox, isn't it? It doesn't really exist at all. It appears to be a series of presents, perhaps a never-ending state of 'present-ness'. But something *must* happen, because you definitely get older. Which is strange if you spend all your time in the present and never in the past or the future. Mind you, you have spent some time in the past, which used to be the present. But you've never spent any time at all in the future. Because when you get to the future, it turns out to be the present and by the time you've thought about it, it's already the past. It's all so confusing, isn't it?

(Found in *A Dog Called Demolition* by Robert Rankin)

## LAST WORDS

**T**oday I caught the Sun,  
but you should have  
seen the star that got  
away!

Submissions to the NEW ZENITH are very welcome and should be sent to the the following address  
The Editor NEW ZENITH  
'Keepers Lock', Youngwoods Way  
Alverstone Garden Village  
Sandown PO36 0HF  
Tele: 01983 407098  
E Mail: john@vlangley.freemove.co.uk (any attached files in Word Document format, preferably)

### FIND VAS ON THE INTERNET

Members should note the Vectis Astronomical Society Website address:

<http://www.wightskies.fsnet.co.uk>

MATERIAL FOR THE NEXT ISSUE TO BE RECEIVED BY THE 6TH OF THE MONTH

The Vectis Astronomical Society and the Editor of the New Zenith accept no responsibility for advice, information or opinion expressed by contributors