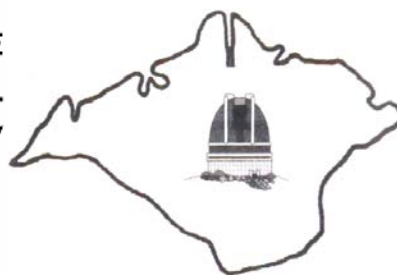


THE NEW ZENITH

THE MONTHLY
MAGAZINE OF THE
VECTIS ASTRONOMICAL
SOCIETY



VOLUME 14 No 1

FEBRUARY 2006

Dear VAS Members

Letter from Lahore

The 8th October 2005 earthquake (EQ) in the north of Pakistan, though felt a thousand miles away, had its epicentre in an area about the size of Wales in an area of the Himalayas with spectacular mountain country in the 3,000 to 20,000 ft range. The population numbers millions, no-one seems to know the exact number but today there are 2½ million of them living in tents and temporary accommodation of one kind or another as winter takes a hold over the entire area. The size of the mountains and the width of the valleys is an awesome sight that no camera can do justice to.

On the 10th and 11th January this year, Daphne and I took a tour of the Balakot area gateway to the beautiful Khagan Valley inside 50 miles from the EQ epicentre. The devastation of housing and resulting loss of life and suffering is frightful and has to be seen to be believed. Throughout the valley, we saw house after house in ruins with perhaps a tent alongside to denote survivors. 75,000 are officially known to have died, many, many more injured. We drove along roads that were cracked, saw mosques, hotels, schools and public buildings as piles of rubble. The tourist guide books for this part of Pakistan will certainly have to be completely re-written.

The Bach Christian Hospital which I built some years ago, about a 45 minute run from Balakot is relatively unscathed. Today, apart from still caring for seriously injured survivors and attending to the health needs of the new homeless, it is a staging post for the EQ relief supplies we have been directing as a result of gifts received from U.K. and a considerable amount from the IOW. So far we have been able to truck up over 16 tons of tents, blankets, quilts, steel sheets and food worth over £20,000, all of which has been answered for by careful placement within days of arrival and very gratefully received..

Back in October, shortly after the EQ we travelled to the Murree hills where we had booked a room in the Pearl Hotel with a Kashmir view over the Jhelum valley. This location is considerably downstream of

Balakot on the Kunhar river which runs into the Jhelum river at the almost completely destroyed Muzafarabad (for those with a map to follow this story). It came with an outside balcony, excellent for celestial viewing as I had found out in the past. However, this time, my mission was to use my Meade ETX90 telescope and 10x50 Leica binoculars for terrestrial viewing over the EQ area. What an experience! With the telescope using mainly at 50x and occasionally up to 100x magnification, I spent hours viewing the sides of the mountains across the valley. One could see so many houses now just piles of rubble, lots with one or more walls down but the roof still up; tents alongside indicating that such houses were too dangerous to use because of aftershocks, plenty of which had been experienced. Roads and power lines were down with plenty of land slips. On the steep slopes even well-built houses had just disappeared down the hill and all one could see was a concrete roof on the scree. The binoculars, while proving to be of insufficient power for viewing the mountains opposite, were great for tracking the helicopters that were taking relief goods from Islamabad, routed over our hotel and disappearing into the distance and bringing out the never-ending numbers of injured survivors.

It was probably this trip to Murree with our trusted telescope and binoculars that helped Daphne and I to focus the concern of so many who wished to help in the EQ relief which followed.

Dennis Norris

The above letter came to me via e-mail. The amazing thing about it was the circumstance in which it happened. On Page 9 of this NZ you will find a half page article about Dennis and his work out in Pakistan, as described in the IW County Press of 13th January. It will be seen that I had dropped a hint to Dennis (who reads these pages avidly out there) to send us a story about how he built the hospital. The unfinished NZ had been closed down but my PC left on. I had not sent anything to Dennis. Within a half hour, my e-mail pinged and the above letter had answered my unspoken wishes. Coincidence or what? Spooky!!

Editor

FROM THE EDITOR

Dear Readers

So, New Zenith has changed its clothing. From our readership of over 150 members, plus a scattering of interested outside bodies who regularly receive our monthly 'comic', it might have been expected that several comments would have been forthcoming? True to form, only three comments have come in. The first one was at the November meeting itself where the new *New Zenith* first appeared. "You seem to have run out of yellow paper!" The next in Sainsbury's in Newport where I was waylaid by a miffed member who complained that now the NZ was arranged on white paper, she no longer was able to locate it amongst all her other paperwork. The final comment arrived via e-mail with a suggestion that, since this publication was now 100% digitally produced, it could be e-mailed out to those preferring electronic copy, thus saving printing and postage costs. Quite a neat idea, I thought, and sent a sample page back as an experiment. Nothing has been heard since so I still do not know whether we could run with the suggestion. I will continue with the concept notwithstanding, but I will need to know the possible demand. So, please let me know what **YOU** think. I'm not holding my breath! Happy New Year.



IN THIS ISSUE

Letter from Lahore	1
Subscriptions Due	2
From the Editor	2
Moon Maiden	3
February Skies	4/5
Strange Happenings!	6
Aerogel	7
Heavenly Bodies and Art of Poetry	8
Election of New Secretary	9
Website of the Month Last Words	10



**NEXT MONTH'S LECTURE
Extraordinary General Meeting*
and
Members' Night**

With Paul Bingham, Kevin West and others

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

EGM

Before the talks by our own Members (see next column) on February 24th, there will be a brief meeting to elect a new VAS Secretary. All paid-up members are entitled to vote, so try to get there.

(More details on Page 9)

February 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**

126	Mr D. Shepherd	£13
300	Mr D. Downer	£17
394	Miss J. Bates	£7

A Flirt with the Moon Maiden

By Peter Burgess

Inspired by Ken Panteny's letter in the November 2005 NZ, I thought I would try to find this rarely seen inhabitant of the lunar surface.

First date

My first attempt to spot the Moon Maiden was not a success. An 11 day old Moon was shining in a clear November evening sky. According to the instructions this was just about the right time to try my luck. It was going to be a challenge though, the article says she is very rarely seen, and to me the drawing seemed to bear little resemblance a maiden however I looked at it. Using the drawing in the article and some mental gymnastics to invert and mirror the image, I could find the right spot on the Moon's surface with very little difficulty. The sweep of the Bay of Rainbows, the promontories on both sides, and even the crater about half way round were all there quite distinctly. I searched high and low for anyone, with or without long flowing hair looking out across the Bay, but she remained in hiding. Try as I might I could not find her. I'd been stood up.

Had anyone else ever actually seen her? A quick search on the Internet did not bring forth any useful images, just drawings that to me were no better than I already had, so I was still left wondering what she looked like. I then came across an electronic book: *The Photographic Moon Book* by Alan Chu, a great work for anyone interested in the Moon, but be prepared for a large download - it is about 68 Megabytes. In its pages is a copy of Cassini's original drawing together with a digital image of the same area. How could I have missed her, long slender neck and waves of flowing hair, she is so obvious, if you only know what you are looking for.

Second date

Most computer programs do not show the Moon's terminator very well, would it be December 11th or 12th that the elusive maiden would make her next appearance, the 11th looked like it may be a little early and 12th a little late. The evening of the 11th was clear and cold with little wind, so with the Moon so bright it was off to the Bay to see if she was there. The weather may have been calm here, but there must have been a gale blowing across the Bay of Rainbows by the way the golden locks of the Moon Maiden were stretched out behind her. She had shown up after all. Would she look her best for the camera, only one way to find out, fit the web cam and start snapping. As you can see I'm not a good photographer but there is a likeness. I know it is not very complimentary, but I'm sure I can see a hint of a goaty beard in there! Or is it a large chin stud? Despite the insults she was still there looking out over the Bay the next night, though a little less distinct, not helped by worsened seeing conditions.

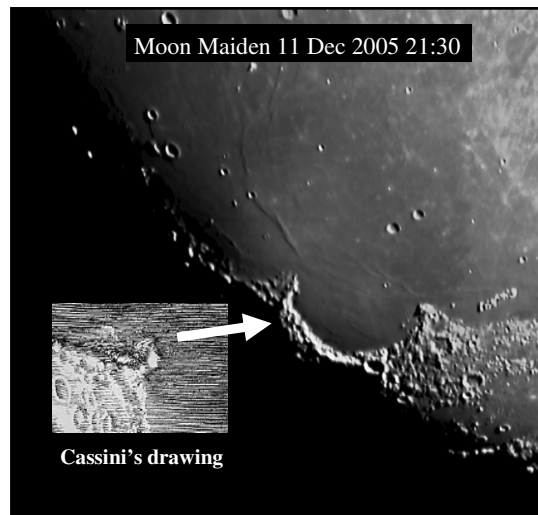
How do you find the Moon Maiden?

As she is an early riser and only appears first thing in the morning, first priority is to have lunar sunrise over

Sinus Iridum. An 11 day old Moon is just about right. For the best effect, timing is quite critical, I would guess that the illusion is at its best for about 12 hours, (I think I was just a little early) so for any observing location some months may be better than others. If like me you are not a lunar observer, and Sinus Iridum sounds more like a nasty nasal problem, rather than the Bay of Rainbows, you will need to know where to look. The map shows the Moon as it would appear to your eyes, the telescopic view could be inverted and or back to front depending on the type of optics. In mid evening just aim at the top left of the Moon with low magnification; you will easily see the where-to-go before zooming in with higher magnification. If you want to produce your own maps I can recommend *The Virtual Moon Atlas* by Legrand & Chevalley: again be prepared for a large download particularly if you want all the picture files.

For those who are interested in the image technicalities, the telescope was a Meade ETX90EC with a Philips Vesta webcam. A total of 370 video frames were aligned and stacked to reduce the video noise using a program called Registax. This produced a single image that could be handled by other processing software. Three different programs were used for different operations, Van-Cittert de-convolution in Stellar Magic, wavelet processing in Iris and final contrast tweaking with Gimp. All this software is freely available on the Internet so assuming a computer and telescope are already available anyone wanting to try their hand at lunar imaging can have a go very cheaply. Ideally the telescope should have a motor drive, it need not be that good, and you can just about get away without one, but I would not recommend it. The only other item you will need is a webcam. For lunar imaging a cheap one with a CMOS sensor costing about 15 pounds should do fine, you do not need a more sensitive and much more expensive one using a CCD unless you want to image planets as well.

The next favourable times are February 8, late evening, and March 10 early evening, but don't wait until then, there are plenty of things to be seen on the Moon at any time.



February Skies

John W Smith

The Planets

Mercury should prove a good object around the 25th of the month when it may be seen about 40 minutes after sunset in the south west. See associated map for details.

Venus is now a morning apparition and will be seen among the background stars of Sagittarius.

Mars has receded further from the Earth and therefore its angular size and brightness have diminished. At mid-month it will be found near the Pleiades.

Jupiter is gradually improving as an object for viewing and will be located in Libra.

Saturn is well placed, lying in Cancer and just south of the Praesepe open cluster at the beginning of the month.

Uranus & Neptune are unfavourably placed.

Meteor Showers

*1 The only active shower this month is the alpha *Aurigids* and they may produce a rate of about 10 per hour between the 6th and the 9th of the month.

Moon Phases

New	1st Quarter	Full	Last Quarter
28 th	5 th	13 th	21 st

Deep Sky Objects for Small Telescopes and Binoculars

M44 NGC2632 This open cluster in Cancer is known as the Praesepe or Beehive, and lies some 500 light years away. It contains over 2,500 stars and is an excellent object for almost any instrument.

M48 NGC2548 An open cluster in Hydra and worth observing, even with a small telescope.

M50 NGC2323 This open cluster in Monoceros is about 2,500 light years away and contains some 100 stars.

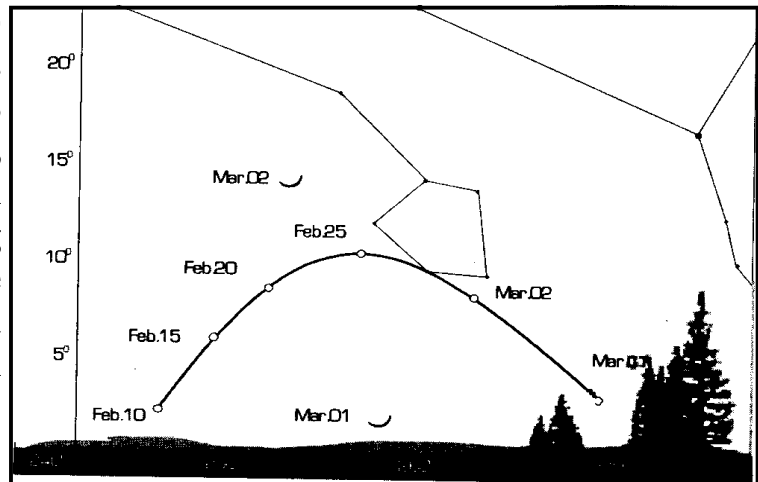
M67 NGC2682 This open cluster in Cancer is only 2,700 light years distant. Binoculars will reveal many bright stars. When using a telescope observe with a wide-field low power lens.

Coordinates

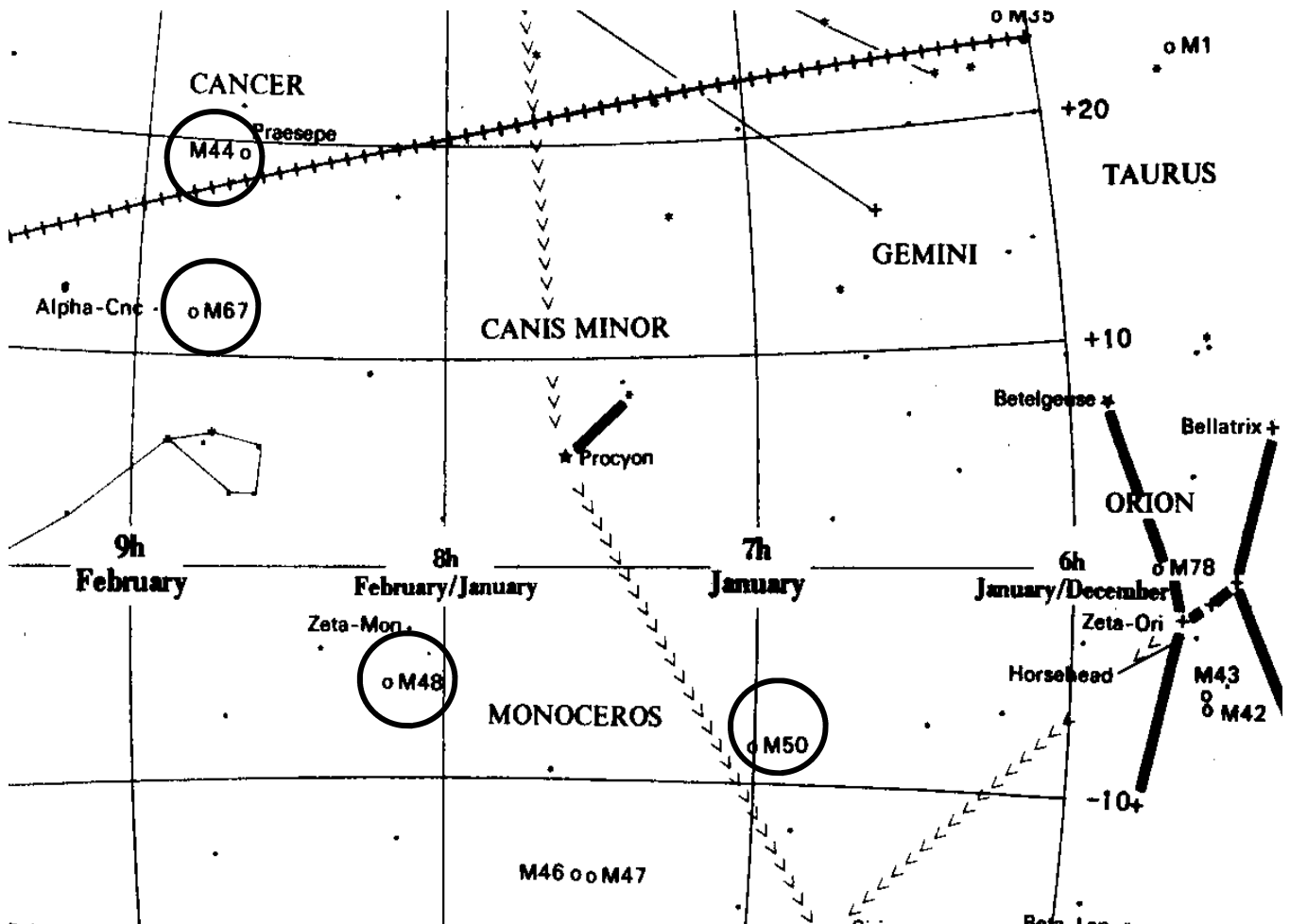
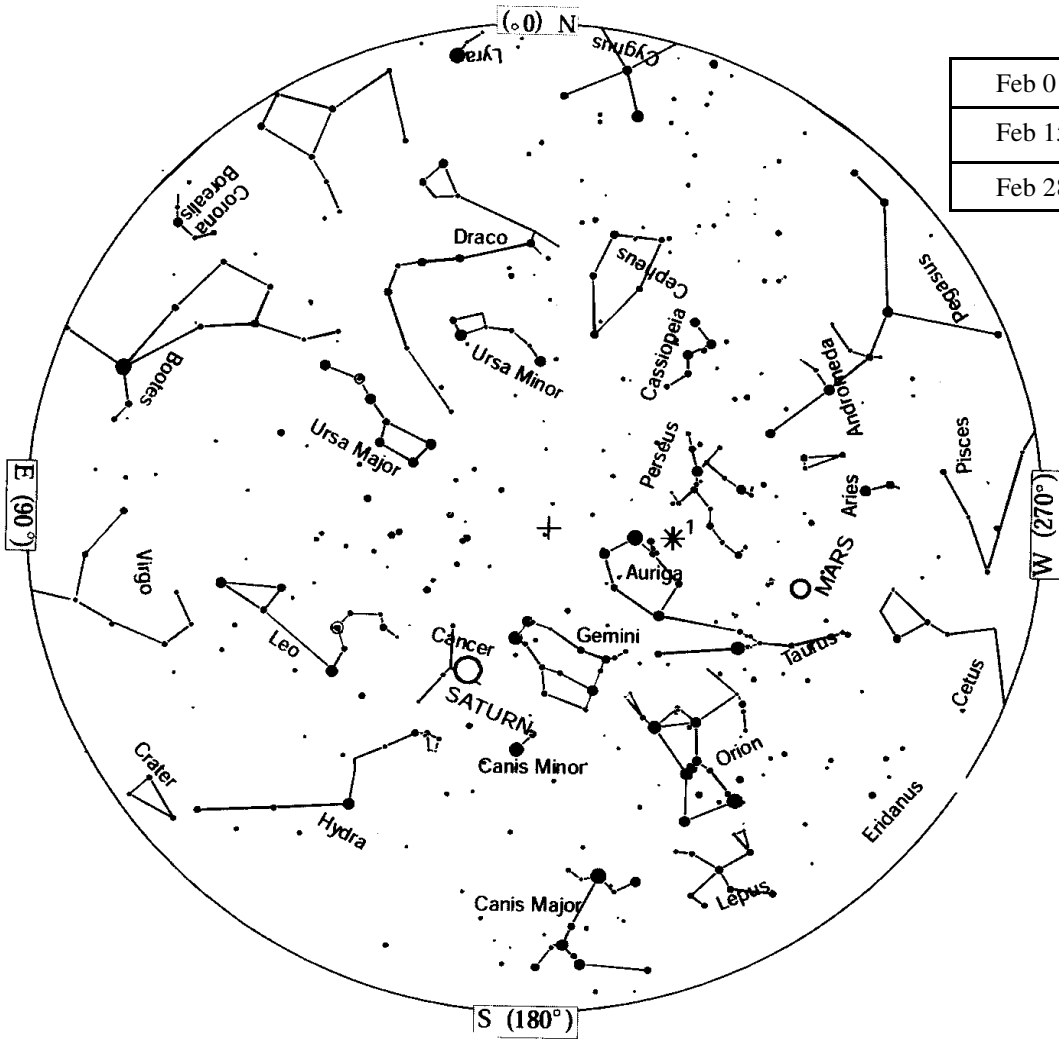
OBJECT	RA	DEC	MAG	SIZE
M44	8h 39m	+20deg 04m	4	95
M48	8h 13m	-05deg 43m	6	30
M50	7h 02m	-08deg 19m	7	16
M67	8h 50m	+11deg 54m	7	15

MARS IN THE WESTERN EVENING SKY

Weather permitting, this will be an excellent chance to find Mercury lying in the west-south-west approximately 40 minutes after sunset. The circlet of Pisces lies above and to the right at the most optimum time, and the Square of Pegasus lies further up and to the right. As the apparition becomes slightly less favourable, the crescent Moon puts in a brief appearance lying below and to the left of the planet on the 1st, and above and to the left on the 2nd.



Feb 01	at	23:00
Feb 15	at	22:00
Feb 28	at	21:00



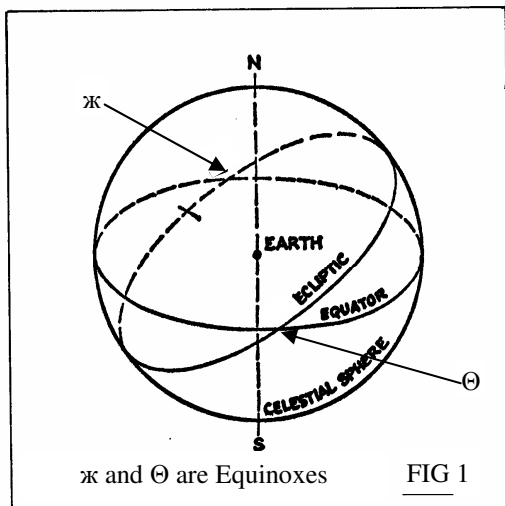
Strange happenings around the shortest day!

John Smith.

At our November meeting Richard Flux gave a short but very interesting talk on the apparently odd behaviour on planetary motion of the Earth. I am not an expert in the laws of planetary motion and not skilled with the mathematics necessary to fully understand or prove the theories, but as a layman I thought this short article may help others to understand our planetary motion a little better.

We notice that the Earth gets its earliest sunset time at around the 14th of December and then the evenings start to draw out. Meanwhile the mornings continue to draw in until around the 6th of January. The overlap time is on the 21st December which makes this the shortest day. This can be explained by Kepler's laws on planetary motion and Newton's theory of Gravity.

Because the orbit of the Earth is slightly elliptical the planet moves faster when it is closest to the Sun (at Perihelion) and slower when it is farthest from the Sun (at Aphelion). Bodies like comets (such as Halley's) that have highly elliptical orbits show this more readily. Another problem is that the Sun's path is inclined by 23.5 degrees from the Earth's equator and is known as the Ecliptic (fig 1). It is this tilt of the Earth that gives us the

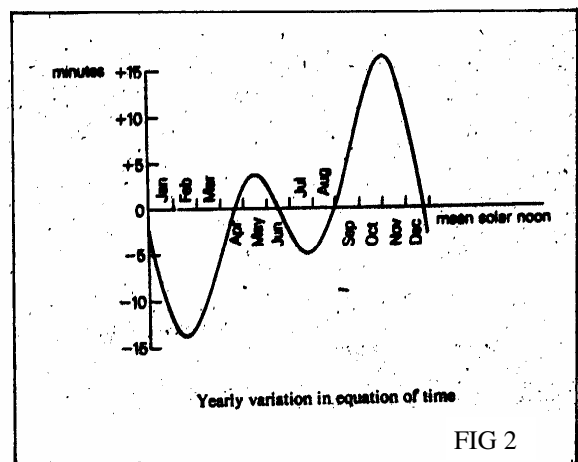


seasons. This ecliptic path gives what is known as "Apparent Solar Time" and is that found by reading sundials. The paths of the Ecliptic and Earth's Equator intersect at two points to give us

the Vernal and Autumn Equinoxes. The Earth maintains its spin rate of around 24 hours per day. There are other factors that cause slight and long term variations but to keep things as simple as possible I have ignored these.

We on Earth need a time system that is regular and we couldn't work with a system that varies over the year, so our clock system of 24 hours per day works very well, and is known as "Greenwich Mean Time" .but as the Earth's orbital rate varies in minutes throughout the year this apparent anomaly shows up with particularly large swings around the Winter Solstice period, when the differences are most noticeable.

This difference between our own clock time and solar time is well known and is referred to as "The Equation of Time" (fig 2). "Mean Solar Time" is shown as the axis line. In mid-winter when we are closest to the Sun (Perihelion) the solar day is slightly shorter whilst at mid-summer (Aphelion) the solar day is slightly longer. From fig 2 it will be seen that the equation of time varies throughout the year, has two maxima, two minima and is zero on four dates.



Because of these planetary laws the times of sunset and sunrise will differ most when we are at our fastest part of the orbit (closest to the Sun) giving apparent sunset and sunrise times each side of the solar mean, making the 21st December the shortest day. This gives rise to the differences that appear between our clocks at noon and true solar time. If the Sun is visible this can be confirmed by reading a correctly positioned sundial.

AEROGEL - WHAT IS IT?

It is 99.8% air, provides 39 times more insulation than the best fibreglass insulation and is 1,000 times less dense than glass

Aerogel is not like conventional foams, but is a special porous material with extreme microporosity on a micron scale. It is composed of individual features only a few nanometres in size. These are linked in a highly porous dendritic-like structure.

This exotic substance has many unusual properties, such as low thermal conductivity, refractive index and sound speed - in addition to its exceptional ability to capture fast moving dust. Aerogel is made by high temperature and pressure-critical-point drying of a gel composed of colloidal silica structural units filled with solvents. Aerogel possesses well-controlled properties and purity and was prepared and flight qualified at the Jet Propulsion Laboratory (JPL) USA. JPL also produced Aerogel for the Mars Pathfinder and Stardust missions. This particular JPL-made silica Aerogel approaches the density of air. It is strong and easily survives launch and space environments. JPL Aerogel capture experiments have flown previously and been recovered on Shuttle flights, Spacelab II and Eureka.

The primary objective of the Stardust mission is to capture both cometary samples and interstellar dust. Main challenges to accomplishing this successfully involve slowing down the particles from their high velocity with minimal heating or other effects that would cause their physical alteration. When the Stardust Spacecraft encounters the Comet Wild 2, the impact velocity of the particles will be up to 6 times the speed of a rifle bullet. Although the captured particles will each be smaller than a grain of sand, high-speed capture could alter their shape and chemical composition - or even vaporize them entirely.

To collect particles without damaging them, Stardust uses this extraordinary substance. It is a silicon-based solid with a porous, sponge-like structure in which 99.8 percent of the volume is empty space. By comparison, Aerogel is 1,000 times less dense than glass, which is another silicon-based solid. When a particle hits the Aerogel, it buries itself in the material, creating a carrot-shaped track up to 200 times its own length. This slows it down and brings the sample to a

relatively gradual stop. Since Aerogel is mostly transparent - with a distinctive smoky blue cast - scientists will use these tracks to find the tiny particles.

The aerogel aboard the Stardust Spacecraft is fitted into a "tennis racket" shaped collector. This is unfolded from the protective Sample Return Capsule to expose it to space during flight. One side of the collector will be faced towards the particles in Comet Wild 2, while the reverse, or B side, will be turned to face the streams of interstellar dust encountered during its journey.

When hypervelocity particles are captured in Aerogel



AEROGEL: THE NEW WONDER MATERIAL

they produce narrow cone-shaped tracks that are hollow, and can easily be seen in the highly transparent Aerogel by using a stereomicroscope. This cone is largest at the point of entry, and the particle is held intact at the point of the cone. This provides a method for determining which direction the dust came from, and is the basis of the approach of using single slabs of Aerogel to collect both cometary and interstellar dust from both sides.

After the encounter with Comet Wild 2, the Aerogel collector will be retracted into the Sample Return Capsule (SRC) and returned to Earth for detailed analysis by scientists at the NASAs Johnson Space Center.

The above information was retrieved from the NASA Stardust Mission website, for more information see

<http://eande.lbl.gov/ECS/aerogels/satoc.htm>

(Dr Simon Green (Open University) was expected to talk about **Exploration of the Solar System** at the November 2005 meeting but instead changed his talk to **The Stardust Mission**. He described how Aerogel had been used to capture cometary debris, so the above notes explain just what this material is.)

Reflections of Heavenly Bodies on the Art of Poetry

By: Hossein Azarmer

When very early Man, in ancient times, looked at the sky at nights he had a desire to be able to fly like birds toward the sky. He wanted to join the glaring stars and touch their beauty, without having a slightest knowledge about them. The desire of Man to fly, in those days, had nothing to do with the art of poetry, apparently because he did not have a proper vocal language to speak to his kindred creatures.

When early language, as a chief means of conveying feelings and expressing desires, was used by him, the matter of the sky definitely was a subject of communication between him and his fellow men. Poetry as a kind of musical and rhythmic form of language was also used in defining the sky's beauty plus the Earth's characteristics.

Later on, in another era, Man succeeded in measuring time by the movement of heavenly bodies in space. He cleverly divided the period taken by the Earth to complete one journey round the Sun into twelve months, then each month to thirty days and each day and night to twenty four hours.

An expression of time by William Shakespeare, in the seventeenth century:

Sonnet No 12

*When I do count the clock that tells the time,
And see the brave day sunk in hideous night;
When I behold the violet past prime,
And sable curls, all silver'd o'er with white,
When lofty trees I see barren of leaves,
Which erst from heat did canopy the herd,
And summer's green all girded up in
sheaves,
Borne on the bier with white and bristly
beard,*

*Then of thy beauty do I question make,
That thou among the wastes of time must go,
Since sweets and beauties must themselves
forsake
And die as fast as they see others grow;
And nothing 'gainst Time's scythe can make
defence
Save breed, to brave him when he takes thee
hence.*

Matters of space and the journey to the Moon have also an influence on poetry, particularly in the English language in recent decades. Pieces of news and knowledge which disperse regularly about the heavenly bodies within scientific journals and magazines might have reflections on the poetry of modern times as well. The other day I got an anthology of space poetry which contains one hundred poems by different modern poets of this country (*Spaceways*, collected by John Foster).

Here is an example of modern style poetry by Ted Hughes, in the last century.

Moon-wind

*There is no wind on the Moon at all
Yet things get blown about.
In utter, utter stillness
Your candle shivers out.*

*In utter, utter stillness
While you stand in the street
A squall of hens and cabbages
Knocks you off your feet.*

*A camp of caravans suddenly
Squawks and takes off.
A ferris wheel bounds along the skyline
Like a somersaulting giraffe.*

*Roots and foundations, nails and screws,
Nothing can hold fast,
Nothing can resist the Moon's
Dead-still blast.*

Hossein

ELECTION OF NEW VAS SECRETARY

As previously announced in New Zenith, Rosemary Pears has decided to stand down as VAS Secretary. Her position is being occupied in a 'standing' capacity by Faith Jordan, *pro tem*.

The post of Secretary is very important to the Society and is filled resulting from an election by Members. The other two Officers on the Executive Committee, also selected by a ballot, are the Chairman (Tom Watson) and the Treasurer (Graham Osborne).

Applications are being invited from current Members willing to be considered for the post. Members may also nominate other Members for the post but must have the prior consent of the Nominee.

The nature of the post covers acting as the focal point for incoming correspondence to VAS, plus queries from the media as they arise. There is a requirement to attend all meetings of the Executive Committee (the Secretary automatically is an EC member), take minutes of the meetings and keep the EC fully informed about matters concerning VAS. The Secretary will be required to give a presentation to the AGM of the minutes of the previous AGM.

The elected person will be computer literate, and connected to the Internet. Being probably the most visible VAS Member, as far as the outside world is concerned, it will be essential that the elected person will be capable of maintaining good and harmonious relationships within and outside VAS. The Secretary receives good support from the EC in maintaining this position and has the opportunity to influence the policies and strategy of the Society in conjunction with the two other VAS Officers.

Nominations in writing may be submitted to be received no later than February 16th. All nominations will be scrutinised for validity (only paid-up Members may submit nominations or be nominated for election). Nominations must have the name and address of the person being put up for election, plus the name and address of the proposer. A vote will be held at the EGM to be held on February 24th at Town Lane Hall, before the evening lectures.

Address for nominations:
Director of Astronomy Services
Keepers Lock
Youngwoods Way
Alverstone Garden Village
Sandown
PO36 0HF

Or, via e-mail: john@vlangley.freemove.co.uk

Members in the News

On opening the *IW County Press* on Friday 13th January, (on page 12) I came across two familiar faces looking back at me from distant Pakistan. They were none other than our old chums Dennis and Daphne Norris working on behalf of earthquake relief in their chosen country of residence. Their son, Julian, still lives on the Island and has been responsible for the raising of around £3500 from generous Islanders in provision of tents and bedding for the desperate people in the stricken region. Each family-sized tent costs around £75 and carries an Isle of Wight logo.

The County Press article went on to say that donations were still being accepted by Julian, who could be contacted on 01983 240431.

Dennis, we in the VAS salute you and your

family for all the good works being done. How about an article on how you built that hospital, as mentioned in the CP?

For the benefit of newly-joined Members, Dennis Norris was the previous Editor of New Zenith. This was back in the good old days of scissors, glue pot and battered typewriter. Dennis passed on the Editorial Hat to me just before returning to Pakistan after a period of living here on the Island. He left with a cheery wave and the helpful advice that editing the NZ would be a piece of cake! Even today, several years down the road from that event, I am still uncertain whether he left the job reluctantly...Time will tell, I suppose.

Anyone wanting to donate to this worthy cause, please contact me on 407098.

INTERESTING FACTS, PART SEVENTEEN

The maximum number of times that a sheet of paper (any size) can be folded in half is seven. If you do not believe this, try it for yourself.

Website of the Month

http://www.nasa.gov/mission_pages/stardust/main/index.html



Stardust Mission returns

Light Pollution Issues

Wight Mouse Inn at Chale have finally agreed to remove all obtrusive lighting along the driveway to their premises and replace with low level units.

Evidence of the excessive light overspill emanating from Sandown's Fairway Sports Stadium has now been presented to the IWCC Planning Unit on a CD so that planners can no longer dismiss our complaints against the 'Alleged Lights' (Council's own words!). In conjunction with the Campaign for the Protection of Rural England (CPRE) body on the IOW, VAS is determined to obtain a satisfactory outcome in removing this widespread nuisance.

VAS Members are invited to let me know of any light pollution they come across so that appropriate actions may be initiated. The Law is on our side - let's make good use of it.

LAST WORDS

No idea what our revered VAS Chairman was up to last year but in the Daily Mail's 2005 fun news quiz published on 31st December a certain question was posed:

"Who made an emotional final appearance in the British Open at St Andrews?"

- A) Jack Nicklaus
- B) Tom Watson
- C) Prince William

The answer was, of course, A)

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.freeserve.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