



Society News

From the Chairman

July marks the fortieth anniversary of the first manned mission to land on the Moon. Launched on July 16, 1969, it carried Mission Commander Neil Armstrong, Command Module Pilot Michael Collins and Lunar Module Pilot Edwin “Buzz” Aldrin Jr. On July 20, Armstrong and Aldrin became the first humans to land on the Moon, while Collins orbited above. The mission fulfilled President John F Kennedy’s goal of reaching the moon by the end of the 1960s, which he expressed during a speech on May 25, 1961: “I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the Moon and returning him safely to the Earth.” It just shows what can be achieved if you put your mind to it.

One of nature’s most spectacular events will be occurring on Wednesday July 22nd. A total eclipse of the Sun will be visible from within a narrow corridor that begins in India and crosses through Nepal, Bangladesh, Bhutan, Myanmar and China. After leaving mainland Asia, the path crosses Japan’s Ryukyu Islands and curves southeast through the Pacific Ocean. The maximum duration of totality reaches 6 minutes 39 seconds. A partial eclipse is seen within the much broader path of the Moon’s penumbral shadow, which includes most of eastern Asia, Indonesia, and the Pacific Ocean. If anyone is going

eclipse chasing, how about a write up for New Zenith please? I’m sure we’d all love to hear about it.

For the rest of us, we can enjoy the Summer Triangle of Vega, Deneb and Altair which is now dominating the night sky. And take a look at Sagittarius, the southern most constellation in the zodiac, although some of it never rises above the horizon in the UK.

Dr Lucy Rogers
Chairman, Vectis Astronomical Society

Can You Help?

Our Secretary, Sue Curd, will be stepping down this year as she has other commitments.

Could you spare just a few hours each month?

If you are interested, or would like more details of this important position, please contact our Chairman, Dr Lucy Rogers at the Registered Office address below or by email to chairman@wightastronomy.org

VAS Website: www.wightastronomy.org

Submissions or letters to New Zenith are always welcome and should be sent to:

The Editor New Zenith
35 Forest Road
Winford
Sandown PO36 0JY

Tel: 01983 864303 or email: editor@wightastronomy.org

Material for the next issue by the 6th of the month please.

VAS Registered Office

Castle Haven Cottage, Castle Haven Lane, Niton Undercliff,
Isle of Wight, PO38 2ND

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

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Monthly Meeting Calendar 2009

Date	Subject	Speaker
Jul 24	Exploring Titan	Dr. Axel Hagermann Open University
Aug 28	AGM + Astro Imaging	Richie Jarvis
Sep 25	The Search for Novae and Supernovae	Guy Hurst
Oct 23	TBA	TBA
Nov 27	The Radial Velocity Experiment, the Gaia satellite & an historic coincidence	Dr. George Seabroke Open University

All details correct at time of publication.

International Year of Astronomy

VAS are planning events throughout 2009 and would appreciate the help of members during the year. If you think you can help with this project in any way, please contact either

Brian Curd - editor@wightastronomy.org or
Bill Johnston - bill.johnston@onwight.net

Below are the events organised so far and will be updated as we add to it. All events are free of charge unless stated. Information is correct at time of publication.

Date/time	Subject	Venue
Sat 25th July Provisional	Observing the night sky	Nettlestone Scout Camp (Private)
Thurs 30th July	Open Night with technical help on hand	Watery Lane Observatory, Newchurch
Mon 10th Aug 14.30 to 15.30	Starry Telling	Freshwater Library (Public)
9th October	Observing the night sky	St Thomas Pri Sch (Private)
Sat 21st November	Observing the night sky	Wellow Institute (Public)

For the latest IYA event list, visit the VAS website
www.wightastronomy.org

New Members

A very warm welcome to our latest new members,

- Nicola Parker
- Daniel Parker
- Peter Wheeler

Tony Plucknett
Membership Secretary

Observatory Telescope Training

Roger Hayward, our Observatory Director, has started training sessions at the Observatory at Watery Lane in Newchurch. If you would like training on the club's kit (and a key to the observatory), please contact Roger at director@wightastronomy.org, or come along on any Thursday evening from 7:30pm.

IYA Helpers

If you can spare a few hours to help at any of the IYA events listed on this page, Bill or Brian would be very pleased to hear from you. We need members to bring their telescopes and/or expertise to these events.

Speakers

It's not just the House of Commons that needs a new speaker! If you can help, either by providing a talk at one of our monthly meetings or to members of the public at an outreach event, Paul England would like to hear from you!
mail@paul-england.co.uk

Winter Project

Are you interested in a Messier object hunt? If so please make yourself known to any member of the Committee as it has been suggested we observe and possibly photograph as many of the Messier objects as possible this winter. If enough members would like to join in, this will become part of Thursday's regular get togethers.

This Month's Night Sky

The month begins with the sky hardly becoming truly dark at any time during the night, by the end of the month though the signs of the summer's retreat are just becoming noticeable as the hours of darkness start to increase.

As I write this the noctilucent cloud season is barely a week old, by the time you read it, it should be in full swing. For the fortnight or so after the solstice they may appear at almost any time of night, and towards the end of the month some time an hour or so after sunset or before sunrise. These clouds are not that uncommon, but because they usually appear at rather unsocial hours they tend not to be seen unless a special effort is made, and even then they prove to be elusive. Rather more predictable objects that are easily seen at this time of year are satellites. With the unaided eye at least one can be seen passing overhead every few minutes. At this time of year satellites whose orbits take them over the poles are in full sunlight as they pass over us and can be seen at any time of night. More spectacular are the Iridium communications satellites that can if conditions are right be so bright that they can be seen even before the sun has set. These dazzlingly bright flares are only at their maximum for a little over a second so you have to be prompt, they won't wait. These are a very localised phenomena that have to be calculated for a specific location, an error of a mile can make all the difference when trying to get the very brightest. Predictions of where and when to look for these and other satellites from www.heavens-above.com

Moon Phases

New	1 st Qtr	Full Moon	Last Qtr
22nd	28th	7th	15th

Planets

Mercury is at superior conjunction this month and therefore is not observable.

Venus is passing through Taurus in the pre-dawn sky. There are two visually impressive conjunctions with **Venus** this month. The first on the 13th with Epsilon Tauri give the bull two bright eyes. On the 27th it passes about a moon diameter south of M1, the crab nebula. This conjunction will show this area of sky looking something like it did to the sky watchers of 1054 when the crab supernova explosion was first seen. On the 18th and 19th the crescent Moon passes through the scene to give a photo opportunity with **Mars** nearby.

Mars is slowly brightening as it also passes through Taurus but is being left behind by the faster moving **Venus**.

Jupiter is approaching opposition and is well placed for observation all night. As **Jupiter** begins to move to the

west against the stars it passes about 1.5° to the south of **Neptune** on the 9th.

Saturn is now quite low down in the northwest as darkness falls and must now be considered as an unfavourable object.

Uranus is clear enough of the horizon haze to be observable for an hour or so before the brightening dawn sky causes it to fade from view. It is in an area of sky below the circlet of Pisces with very few bright stars to act as a guide to its location, unlike **Neptune** that has the very bright **Jupiter** as a guide.

Neptune is close to **Jupiter** this month and well placed for observation. **Jupiter** acts as a very convenient guide to aid in finding this rather dim outer planet. The chart shows a 3x2 degree field of view with the paths of both **Jupiter** and **Neptune** shown for the month; stars are plotted down to magnitude 9, with the bright star between them at the start of the month being a relatively bright magnitude 5.1.

Meteors

- Alpha cygnids have a favourable peak on the 21st with a rate of about 5 per hour.
- Capricornids stream has three peaks the first two on the 8th and 15th are unfavourable while the last on the 26 when the first quarter moon will have set.
- Delata Aquirids has a favourable peak on the 28th with an expected rate of 20 per hour.

Deep Sky Objects

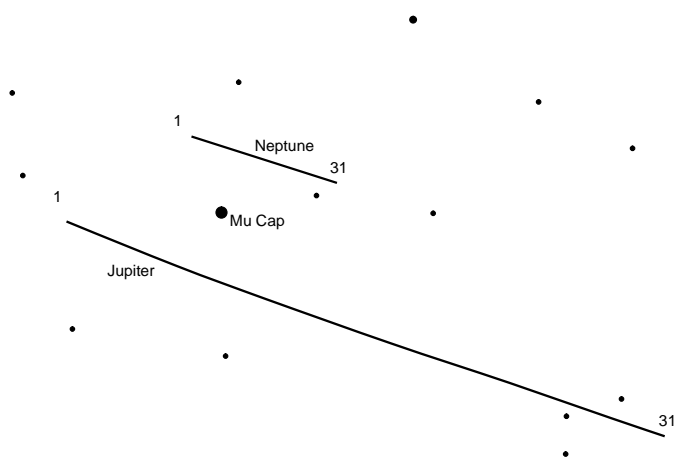
M14 Globular Cluster R.A 17h 38m Dec -3° 15' mag 7.6 - Despite its magnitude this is quite a difficult binocular object, it is quite large but does not have a particularly well condensed core. This means that the available light is spread out rather thinly. Larger aperture telescopes are needed to resolve some of the cluster stars.

IC4665 Open Cluster R.A. 17h 47m Dec 5° 42' mag 4.2 - This is a large cluster slightly more than a degree in diameter. It is best viewed in a rich field telescope or large binoculars. The brighter members form right angled triangular patterns around the cluster's centre.

NGC6633 Open Cluster R.A. 18h 28m Dec 6° 34' mag 4.5 - Although it is clearly visible in binoculars it is best viewed through a rich field telescope where the brighter members of this cluster form a rather wavy looking wedge of stars. If viewed before the sky darkens too much restricting the number of visible stars the scene is reminiscent of a miniature Leo, the backward question mark is a little indistinct, but the back and haunches are easily distinguishable.

Cont'd...

Occultations



Jupiter & Neptune 1st to 31st July. 3x2deg field of view. Stars to mag 9

Between 02:20 and 04:12 on the 18th the moon will occult several stars in the Pleiades star cluster.

Peter Burgess

LRO Successfully In Lunar Orbit - June 23rd

The Lunar Reconnaissance Orbiter fired its braking thrusters for 40 minutes early today, successfully inserting the spacecraft into orbit around the Moon. Over the next several days, LRO's instruments will be turned on and its orbit will be fine-tuned. Then LRO will begin its primary mission of mapping the lunar surface to find future landing sites and searching for resources that would make possible a permanent human presence on the moon. Also, early Tuesday, the companion mission Lunar Crater Observation and Sensing Satellite (LCROSS) sent back live video as it flew 9,000 km above the Moon, as it enters its elongated Earth orbit, which will bring it on course to impact the Moon's south pole in October.

The two spacecraft reached the Moon four-and-a-half days after launch. LRO's rocket firing began around 9:20 GMT (5:47 a.m. EDT) and ended at 10:27 GME (6:27 a.m. EDT), putting the spacecraft into an orbit tilted 30 degrees from the moon's poles with a low point of 218 km (136 miles) and a high point of 3,000 km (1,926 miles). Over the next five days, additional rocket firings will put the spacecraft into the correct orbit for making its observations for the prime mission, which lasts a year — a polar orbit of about 31 miles, or 50 kilometers, the closest any spacecraft has orbited the moon.

*Nancy Atkinson
Universe Today*



Helios 102 Refractor

Focal Length: 1000mm

Mount: Sky Scan 2001 Equatorial Mount with Polar Alignment Scope

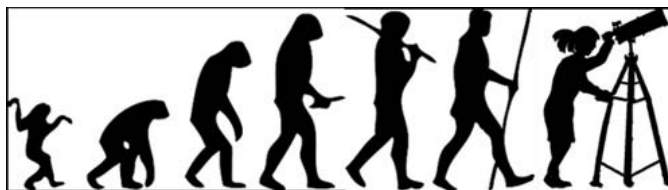
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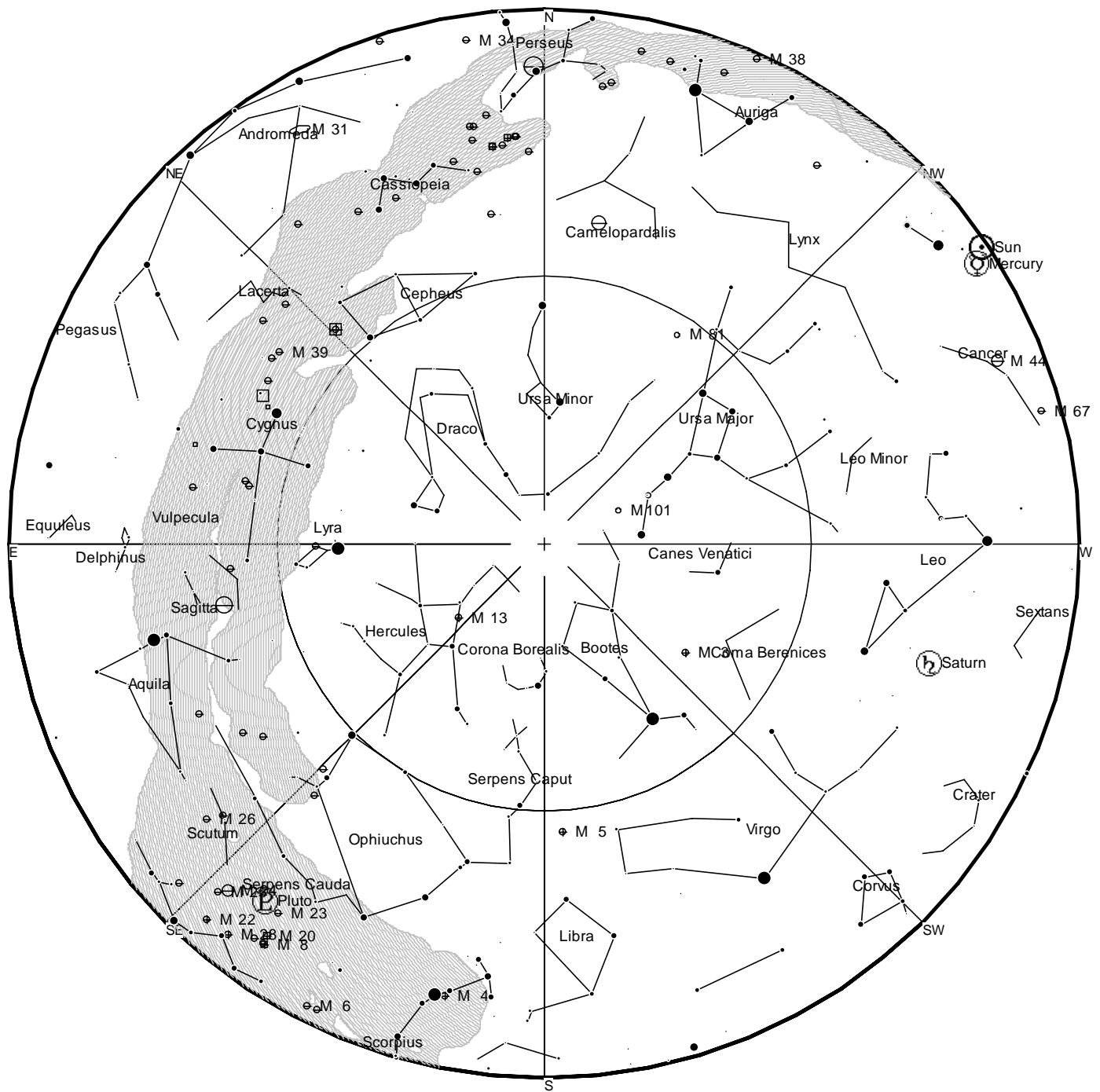
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This Month's Sky Map



View from Newchurch Isle of Wight UK - 2100hrs - 15 July 2009



Messier 14 (also known as M14 or NGC 6402) is a globular cluster in the constellation Ophiuchus. It was discovered by Charles Messier in 1764.

At a distance of about 30,000 light-years, M14 contains several hundreds of thousands of stars. At an apparent magnitude +7.6 it can be easily observed with binoculars. Medium-sized telescopes will show some hint of the individual stars of which the brightest is of magnitude +14.

This article is licensed under the [GNU Free Documentation License](http://www.gnu.org/licenses/fdl.html). It uses material from the Wikipedia article "Messier 14"

Starting as a Stargazer... Part II

I finally recognised Perseus, and then Corona Borealis (I like that one). But I wasn't doing too well on Cancer. And where was Coma Berenices? Up to the attic I went, and found two old pairs of binoculars.

The 16x50s were exasperating. They had such a small field of vision that I had no idea what I was seeing - one star looked much like another, without a pattern to go by. Worse, the binoculars were so heavy that my hands soon began to tremble, and the stars waltzed madly. The 7x50s showed more sky, and were more useful, though they were hideously scratched, reducing everything to 'fuzzy object' status. Mizar was my first double star, and I also found Coma Berenices. Result! By now I was following around the constellations, trying to recognise them even when partly hidden by clouds. I found the Beehive, but my eyes still couldn't recognise the pattern of Cancer in the sky.

Waterstones provided me with another book: 'Philip's solar system observer's guide' by Peter Grego, published in 2005. (Description at <http://bookshop.blackwell.co.uk>). The book explained binoculars and indeed eyes in some detail, and went on to telescopes, so that at last I was able to tell a refractor from a reflector. It also enumerated the exciting things to be seen through a telescope, and told me when to look for them, though after my struggle with the binoculars I was sceptical.

I was going to need help, and the Island, I was sure, was swarming with well-informed astronomers. Google found VAS; Sue answered my email; and one Thursday night I headed off to Newchurch to find the observatory — Blinded by car park lights, I stumbled across a field and fell into some invisible people. They were abusing the moon, which seemed odd, and a voice in the blackness kindly asked if I had seen Saturn yet - if not, would I like to look? Recovering myself, I peered obediently. Does everybody remember their first view of Saturn in a telescope? The tiny luminous image with its minuscule moons was somehow utterly convincing.

I went on looking, while obscure remarks about 'kit' and 'imaging' wafted above my head; then there was a drift inside, and someone rumbled the dome around and pointed the main telescope (it seemed huge) at the despised moon. I understood the problem then, as nearly everything else was washed out of the sky, while in the eyepiece the moon itself was almost too bright to look at. Meantime, there was a good deal of tea drinking and arcane conversation downstairs.

The next formal VAS meeting was on the following Friday (a lecture about the history of the telescope); I went in, enjoyed the talk, and signed up.

Rebecca Mitchelmore

VAS Officers and Committee Nominations 2009/10

For those wishing to stand for election at the Annual General Meeting of the Society to be held on Friday 28th August 2009 at 7.00pm.

Name and Address of Nominee:

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Standing for

- Chairman
- Secretary.....
- Treasurer
- Committee.....

Proposed by:

Seconded by:

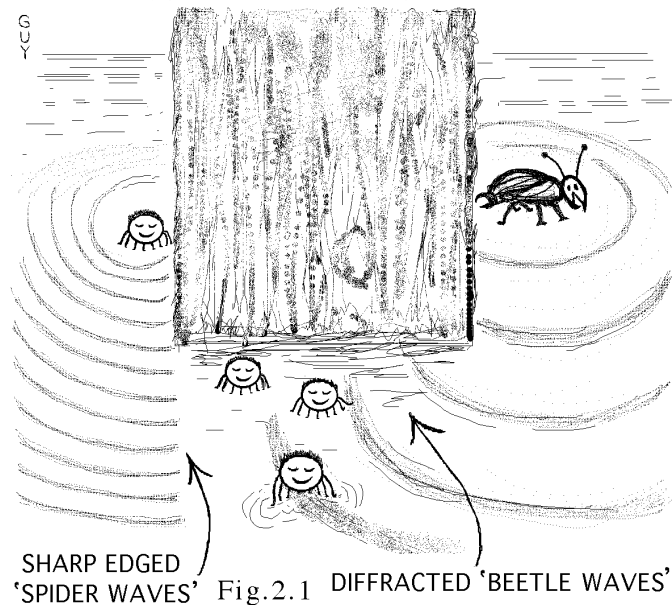
Signature of Nominee:

Notes

1. No person can be elected to more than one position.
2. Only adult fully paid-up members may stand for election (or propose or second).
3. All completed nomination forms to be received by the Secretary in writing at least 7 days before the AGM. The Committee consists of not less than six members.

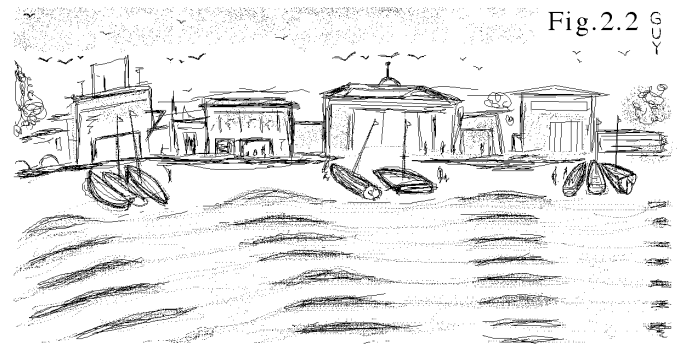
Diffraction and Interference: Story (part 2) + Computing

We hear interference on our radios during a storm. Radio amateurs, call it 'QRM' - it includes noises from unsuppressed electrical equipment, welders, power supplies, fluorescent tubes, transmitter splatter, etc. During the cold war, jamming stations deliberately created interference. If 'interference' means unwanted noises to you, then it can seem strange to hear scientists using the term in a very specialized positive manner, as if interference is desirable. For astronomers, particularly interested in light and radio waves, interference is the superposition of waves of equal or near equal frequencies. It is fundamental and very useful. Here's more about the basics - story first, then computing.

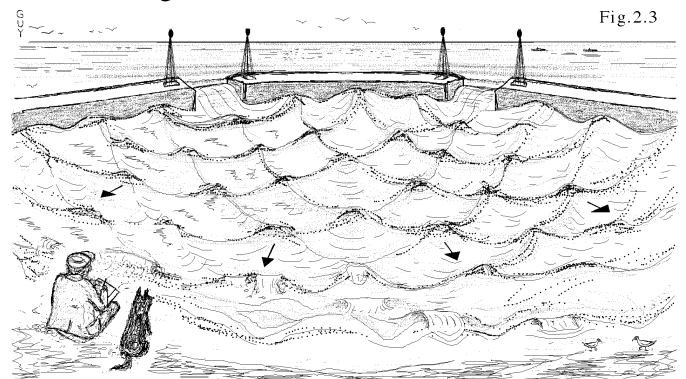


After their windy night on the harbour wall, Sylvius gets out his notebook - sometimes he has ideas for little stories. He thinks about the cormorant atop the post, where the waves were going up and down evenly all around it (June NZ). In the post are little holes. In one hole lives Yuri, a large water beetle. On the other side, in smaller holes, live tiny water-spiders. The pitter-patter of their little feet, makes very short waves which don't diffract much around the corners of the post, so they form sharp shadows, see Fig.2.1. But when Yuri plods around, his clumsier longer waves diffract considerably - the spiders around the corner even get free rides up and down before running away. Pluto watches Sylvius writing. Sylvius might get his stories published, but then how do you get paid when you're on the move? - so he keeps his notebook for later - one day he might settle down with an address, he is heading for Europe, perhaps Paris or London.

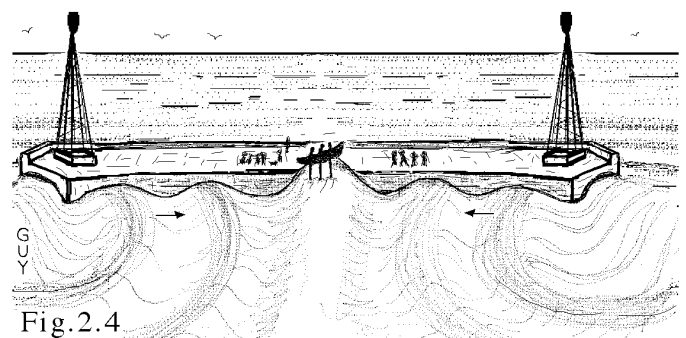
The Sun rises, they have breakfast, and looking across the harbour, Fig.2.2, they see in the distance a row of fisherman's sheds. On the beach are groups of boats. Then Sylvius notices stretches of rough water, with larger waves



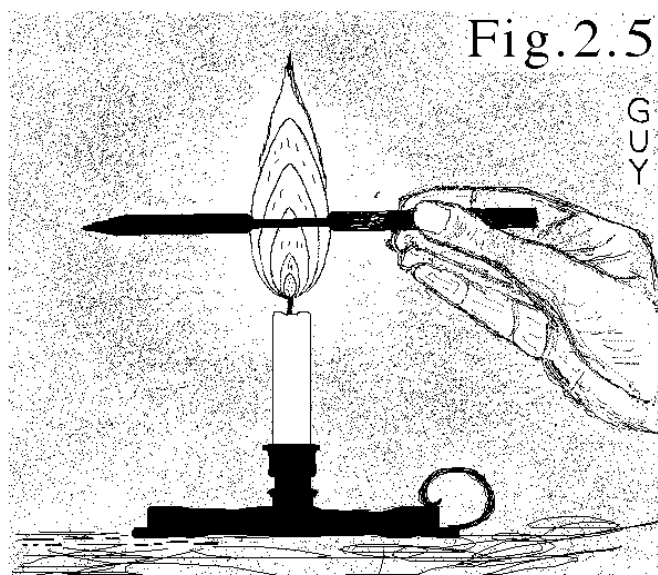
breaking on the beach in regular patches. The boats are drawn up only in the calmer areas. The reason for this is the harbour has two entrances, Fig.2.3, and the waves from each entrance add up ('superpose') giving long stripes of rough water. (Scientists call this 'interference' - 'constructive' where the waves are in phase, nothing to do with crackling radios.)



Some fishermen row Sylvius and Pluto out to the middle jetty. On each side of their route are large waves, but they follow a straight track, along a strip of mysteriously calm water. (Here the waves are 'out of phase' scientists call this 'destructive interference'). They spend the day on the jetty, Sylvius doing sketches he can sell. A Spring tide is imminent, the waves come crashing in, Fig.2.4. Sailors are practising for a regatta when teams of rowers attempt to ride up the middle wave, **where the amplitude is doubled**, and land the boat in the middle of the jetty. When the wave recedes they have to run down one set of steps, and up another set, before the next big wave surges in (not shown) - what a lot of fun! Pluto enjoys it too - woof-woof!



During the afternoon, the fishermen row Sylvius and Pluto back to the beach. None of the fishermen use the middle hut because the water is always rough in front of it - instead, an artist called Jacques uses it as his studio. He makes stained glass windows, drawing them on paper, first small, then as full-sized 'cartoons', cutting the glass to the shapes. Then he fits the pieces together between lead channels and solders all the joints.



Sylvius doesn't like to say so, but the heads on the figures in the windows seem too small. "Ah", says Jacques, "I know what you're thinking, the heads are too small." - Sylvius agrees - "They always do - *on paper* - but when it gets dark, I'll let you into a secret. As they're sitting on the beach, Jacques, several metres away, holds a pencil *in front* of a candle flame - Fig.2.5 (**please respect safety with candles or other lights, do not stare at flames and never look into laser beams**). "Now the pencil appears to get thinner where it crosses the flame?" Sylvius agrees - but if this is diffraction then the light is bending rather a lot. (The effect is less in bright daylight when the pupils of the eyes are smaller.) Jacques explains that whatever the reason, that's why you don't notice the leads in stained glass - they shrink. "We allow for it - if you do heads in proper proportion to their bodies, they appear too big" - "So, you make them smaller to compensate?" suggests Sylvius. Jacques agrees. Sylvius consults his dictionary - "Now is this really diffraction, halation, dazzle or glare?" "I don't know" says Jacques, "we only go by how things look, maybe it's an optical illusion. "Right," agrees Sylvius, Pluto gives a "woof" as Jacques explains that where the lead crosses the rabbit's ears, bottom left in Fig.2.6, the light "bends around the lead" so you won't notice where it crosses the rabbit's ears in the *final window*.

Sylvius wonders if Jacques has any offcuts, so he can have a go. Jacques laughs - "Offcuts? In stained glass **you see colours by contrast**, if you've got a big area of azure (blue), it becomes a brighter blue with a chip of ruby (red)

here and there, every chip gets used - but there *is* a bin of cullet you're welcome to use..."



Sylvius is fascinated, light going round corners... and in such a big way. No, this can't be true, this has to be a different effect - what happens when a star is occulted by the Moon?- it disappears very quickly, with scarcely any diffraction. "But how much diffraction?", wonders Sylvius. He stays for several weeks, surprising Jacques by making strange windows from cullet, which Jacques sells. It goes like hot cakes, a new line of Russian art, and brings the money back. Sylvius shrugs, shares some of the money, and eventually, he and Pluto set off again on their long journey. "Now if only I could meet a physicist", thinks Sylvius, a physicist might explain some of these things, but we can't go back to the last one, we must find another in a different city. "Diffraction, halation, optical illusion - all put to good effect by the artist... what would scientists make of all this? There's more to this than meets the eye..." he laughs, a "woof" from Pluto. "I wonder if on the retina itself, light mixes across or enters the focussed black images of the stained glass window leads? Optical effects - artists may not know how they work, but they sure know how to use them!" This includes throwing a potato into the molten glass - it explodes in the melt, making billions of tiny bubbles that scatter the light so you can't see directly through stained glass - ah! - some more optical clues, not seen on paper, lie here...

Notes:

- This stained glass information comes from the experience of assisting a late relative.
- "Halation" can refer to the blurring caused by too much light in photography, giving reflections from the back of the negative - try a normal dictionary.

Diffraction in BBC Basic

At least one young NZ reader likes maths and computer programming - here's some details on making diffraction pictures, using Huygens' principle. Various emulators are available. You need a graphics mode and shift the origin to the middle left if you can (like line 50). Writing your own programs is very instructive. Start with the simplest, then develop them. You get feedback from the results, like jam

and pie making. The following program simulates laser light ($\lambda=20$ units) passing through two narrow slits (width 5 units), spaced by 50 units. The pattern is computed on a screen 1500 units from the slits - like in Fig.2.7.

```

10 PRINT " Guy for NZ 5.6.9a"
20 width=5 : spacing=50 : lambda=20
30 length = 1500 : amp=20
40 PRINT "   width=";width;"
   spacing=";spacing;" lambda=";lambda;"
   amp=";amp
50 VDU29,200;800; : REM origin at 200,800,
   (depends on emulator type)
60 REM --- draw plate with two slits ---
70 MOVE 0,0: DRAW 0,spacing/2 : MOVE 0,
   spacing/2+width : DRAW 0,200+ spacing/
   2+width
80 MOVE 0,0: DRAW 0,-spacing/2 : MOVE 0, -
   spacing/2-width : DRAW 0,-200- spacing/
   2+width
85 END : REM if ok to here, delete this
   line
90 REM --- draw the incident wave ---
100 FOR travel=20 TO 120:
Y=amp*SIN(2*PI*travel/lambda) : PLOT
69,travel-200,Y : NEXT
105 END: REM if ok to here, delete this
   line
110 REM --- set the incident wave's phase -
   --
120 FOR phase=0 TO 360 STEP 45
140 REM --- now take a point y up the
   screen from mid-line, distance is 'length'
   from the slits
150 FOR y=0 TO 800 : PLOT69,length,y :
   PLOT69,length,-y
160 path1squared=(length^2)+((y-spacing/
   2)^2) : path1=SQR(path1squared)
170 path2squared=(length^2)+((y+spacing/
   2)^2) : path2=SQR(path2squared)
180 waveamp1=amp*SIN(2*PI*((path1/lambda)-
   phase/360))
190 waveamp2=amp*SIN(2*PI*((path2/lambda)-
   phase/360))
200 sum=waveamp1+waveamp2
210 PLOT69,length+sum,y:
   PLOT69,length+sum,-y
220 NEXT y
230 NEXT phase
240 END

```

The code is available as a .txt file at
<http://wightastronomy.org/basicfiles/code01.txt>



Fig.2.7

The wave amplitude = 20 units. If line 50 doesn't work (it shifts the origin), omit this line and instead add 200 to the x-values in the PLOT statements, and 800 to the y-values, respectively. Delete line 85 when you see the slits drawn correctly, and delete line 105 when the program draws the incident wave. The rest of the program superposes the two waves at point y on the screen, scanning through enough phase angles to get the effect of wave travel.

Fig.2.8 is a computation for single slit diffraction (many adjacent narrow slits each of width 0.025λ , young inquisitive computer enthusiasts can write this program) and Fig.2.9, ditto, but using a semi-circular screen to scale, the total single slit width is 20λ . Programs are available, but not for making stained glass. Art and science sometimes illuminate each other.

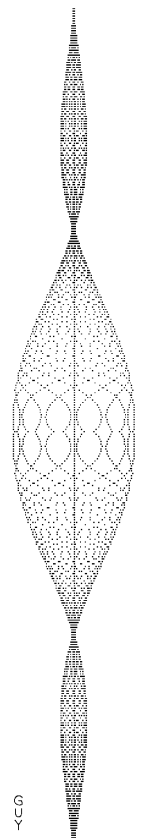


Fig.2.8

All hunky-dory? Not quite - I'm still puzzling over computing Fig.2.1, to answer Sylvius's question, "how big is a corner?" It appears that on a local basis, the inverse square law is needed too, combined with interference. ("How sharp is a corner?" - is a very different question.)

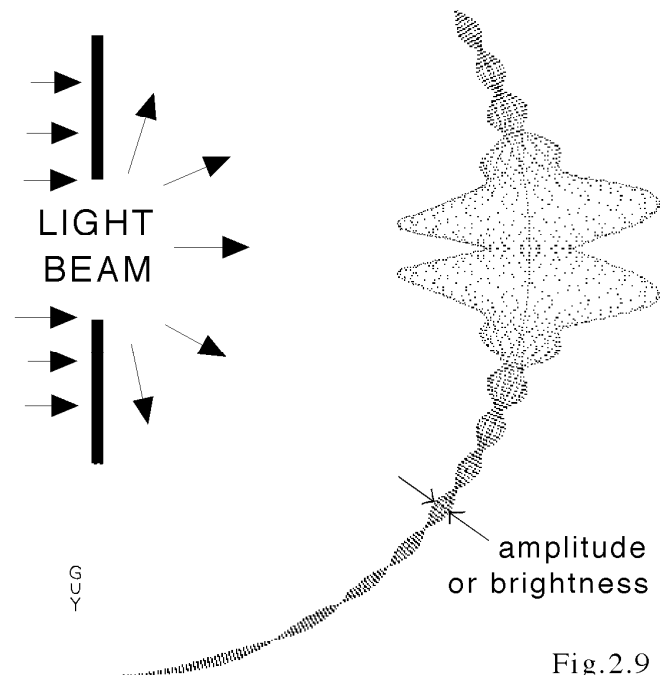


Fig.2.9

Happy astro-computing! - Dr.Guy Moore

THE BACK PAGE

LINKS, COMMENTS AND OBSERVATIONS

News and Events

Hoax Email doing the rounds

27th Aug the Whole World is waiting for...

Planet Mars will be the brightest in the night sky starting August.

It will look as large as the full moon to the naked eye. This will cultivate on Aug. 27 when Mars comes within 34.65M miles of earth. Be sure to watch the sky on Aug. 27 12:30 am. It will look like the earth has 2 moons. The next time Mars may come this close is in 2287. Share this with your friends as NO ONE ALIVE TODAY will ever see it again.

It goes on as well.....

<http://www.snopes.com/science/astronomy/brightmars.asp> has more details.

Shame really as this is just the kind of thing I'd like to see!

Observatory Histories

A new DSpace@Cambridge collection "Images from the Institute of Astronomy Library" - <http://www.dspace.cam.ac.uk/handle/1810/214761> is gathering fascinating documents of the history of the Cambridge and other world renowned observatories together with images of astronomers, letters and other records from the Institute of Astronomy Library. This collection is being created digitally by Mark Hurn and Amanda Smith and is being managed on behalf of the Institute by DSpace@Cambridge ascertaining dissemination and future accessibility.

Weblinks

Virtual Telescope Joins IYA 2009

<http://virtualtelescope.bellatrixobservatory.org/english.html>

Apple Mac Astronomy Freeware

<http://www.pure-mac.com/astronomy.html>

<http://www.davidillig.com/astromac.shtml>

The Moon - 40 Years On

On 20 July 1969, Neil Armstrong became the first man to walk on the moon. This BBC Archive collection tells the story of the Apollo moon missions, how they got off the ground and why the missions came to an abrupt end.

<http://www.bbc.co.uk/archive/moonlandings/>

The Beeb is also running a series of Moon related programs through the rest of June and into July - *you may want to keep an eye on the TV schedules....*

Great Images In NASA (GRIN)

<http://grin.hq.nasa.gov/index.html>

Bits of Apollo 11

<http://www.nasm.si.edu/events/apollo11/objects/>

THE UNIVERSE
YOURS TO DISCOVER



INTERNATIONAL YEAR OF
ASTRONOMY
2009

Quotations

"...man will occasionally stumble over the truth, but usually manages to pick himself up, walk over or around it, and carry on."

Sir Winston Churchill

"I do not like it, and I am sorry I ever had anything to do with it."

Erwin Schrödinger (1887-1961)
Austrian physicist. Nobel Prize, 1933. Speaking of quantum mechanics.

Observatory

For your own safety, when visiting the VAS observatory, please remember to bring a torch. Also, please make sure you close the car park gate if you are the last to leave.

Articles Needed

New Zenith welcomes letters, articles or pictures related to all aspects of astronomy. Please send contributions to the Editor at the email or postal address on the front page.