SPÉIR

No.5 Winter 07

Astronomy with a Kerry Twist

TRANSIENT LUNAR PHENOMENON

is the moon really dead

Beyond M42: Orion

Tycho Brahe

Grenwich Observatory

www.kerryastronomyclub.com

WELCOME

Hi folks

Its almost a new year and time for a new issue. This is issue five which is the first of our second year. I hope this years batch of Spéir will be better than last years, which at times was rushed to print and my contributions may not have been as good as they could have been. This year, I shall strive to do better. I would like to take this opportunity to thanks all contributors to last years issues and in particular, Marian Gunning who has been supplying excellent articles since we started. A more recent addition is John Keane's articles on astronomers throughout the ages and their contributions to the science of astronomy. A special thank you also has to go to Michael Scully, whose photos grace every issue and who puts in countless hours behind the scenes maintaining the website and presenting to us at almost every meeting.

Recently, I seem to have been bitten by the lunar bug, and no harm either, when you consider that it is in the sky for half of our nights, and with our weather, opportunities for observing deep sky stuff are few and far between. I hope you can indulge my lunacy and welcome to the pages of Spéir, a lunar observing section, detailing some interesting features that can be seen on the moon's surface.

Feedback on Spéir has been slim, so PLEASE PLEASE, let me know how we can improve Spéir. I welcome all feedback, especially pointers on how to make the mag better. There is an anonymous feedback section on our website or simply email or telephone me.

Lets hope the coming year will see plenty of dark and clear skies and give us an opportunity to learn a little more about the night sky.

Trevor O'Donoghue

Astronomy News from Around Ireland

A few members of Kerry Astronomy club attended the whirlpool star party in Birr on the weekend of 29th October. Judging from accounts I have heard, Shannonside Astronomy club are to be congratulated on hosting another excellent event. A meeting of the IFAS (Irish Federation of Astronomical Societies)committee was also held at Whirlpool and a new executive committee was elected. Michael O'Connell from Tullamore Astronomy Society is now the new chairman; vice chair is held by Dave McDonald from Kildare Astronomy Society; Dave Lillis from Shannon Side is the new secretary and Bernie Foley from Deise Astronomy Society was elected treasurer. I am sure you will join me in wishing them all the best in their new posts.

Connaught Star Party

Galway Astronomy club will be holding their annual Connaught Star Party on January 27th 07 at the Westwood House. It promises to be a great day with Trade Stands, Exhibitions, An imaging Workshop, Table quiz, raffles, banquet and some illustrious speakers. *Dr Lucie Green Mullard Space Science Lab UCL UK. Talk on the new NASA Mission to view the Sun in 3-D.* Prof Chris Dainty Experimental Physics Dept NUI Galway. TBC Possibly on Adaptive Optics on Massive telescopes. *Prof Richard Butler, Head of Chemistry Dept NUI Galway. clues to Life's Origins in Meteorites and Titan.* Dr Arron Golden IT Dept (Radio Astronomy) NUI Galway. Exploring in the Twilight zone at the Substeller Boundary: Are Brown Dwarfs Planets ,Pulsars or Stars? *Dave Grennan Dublin. Short but informative talk on Digital Astro-photography.* To find out more, why not visit www.galwayastronomyclub.ie

Amateur Observing Programme

A new amateur observing programme has been announced by IFAS. This is the brainchild of Dave McDonald of Celbridge Observatory and Eamonn Ansboro of Kingsland Observatory in Roscommon. In a nutshell, the programme will allow amateur astronomers from all over Ireland to make scientifically useful observations. You do not need a state of the art telescope to get involved, just the enthusiasm to help out. This programme will cover all areas of astronomy from lunar, solar and planetary observations to comet hunting and extra solar planet hunting. The programme will be rolled out with two active modules, meteor watches and supernova hunting. Volunteers with lots of different skills are needed, people with computer skills, report writers and people to image the sky. The easiest way to get involved at this early stage is to sign up for meteor shower watches. All you need is your eyes and a cup of hot chocolate to keep you warm. If you would like to find out more, visit www.irishastronomy.org where you can sign up and download lots of information on the programme.

Tycho Brahe
A man with a nose for Astronomy

Tycho Brahe (1546-1601) was a Danish astronomer who was best known for making detailedl observations of planetary and star positions to unprecedented levels of accuracy using pre-telescopic instruments.

Born into a Danish noble family, his father at one time was appointed governor of Helsingborg (now part of Sweden). Tycho enjoyed all the privileges of his father's position and was sent to the finest schools through out Europe. It was at one of these schools that Tycho's interest in astronomy began when a total solar eclipse occurred on August 21, 1560. The fact that it had been predicted so impressed him that he began to make his own studies of astronomy helped by some of his professors. He purchased an ephemeris and books such as Sacrobosco's *Tractatus de Sphaera*, Apianus's *Cosmographia seu descriptio totius orbis* and Regiomontanus's *De triangulis omnimodis*.Tycho realised from studying these books that none of the methods used and measurements taken agreed with each other, so he wrote in his dairy "*what was needed was a long term project with the aim of mapping the heavens conducted from a single location over a period of several years."* Tycho was just 17 years old

when wrote this.
While a student, Tycho lost part of his nose in a duel with a fellow Danish nobleman called Parsbjerg. This occurred in the Christmas of 1566, while he was studying at the University of Rostock in Germany after a fair amount of drink was consumed at a dance being hosted by one of his professors, he quarreled with Parsbjerg. The subsequent duel (in the dark) resulted in Tycho losing the bridge of his nose. For the rest of his life, he was said to have worn a replacement made of silver and gold blended into a flesh tone, and used an adhesive balm to keep it attached.
In Augusts 1563, Tycho had observed a conjunction of Jupiter and Saturn, noticing that the Copernican tables were grossly in error by some several days in predicting the event. He then decided to devote the rest of his life to improving planetary and stellar positions. He returned to Denmark in 1570 and constructed a private observatory to carry out his task of charting the heavens. In 1571 Tycho discovered a supernova in the constellation of Cassiopeia which so impressed the King that he gave him his own island and constructed two more observatories.
Over the next 20 years Tycho methodically carried out his task with the aid of one of his sisters. Up to that time the most accurate observations were of the order of 15', Tycho improved this to 30". He was also the first to take atmospheric refraction into account in correcting observed planetary and stellar positions.
Tycho made the first truly scientific studies of comets, observing the position, magnitude, colour and orientation of the tail of the comet of 1577. These observations led him to conclude that the comets orbit which he determined must have a elongated shape, lay beyond the Moon, thus beginning the end of the Aristotelian notion that planets were contained within solid crystalline spheres through which a body like a comet could not pass.Tycho documented the apparent movement of the sun which allowed him to determine the length of year to within 1 second, forcing ten days to be dropped from the Julian calendar in 1582. He also measured Earth's axial tilt as 23 degrees and 31.5 minutes, which he claimed to be more accurate than Copernicus by 3.5 minutes.Tycho was not a Copernican, but created a Tychonian System in which the planets revolve around the Sun, and the Sun and Moon in turn revolving around a fixed Earth. This model still fitted the church's view that Earth was still the centre and was more widely accepted by astronomers until the mid 17th century. On a more personal level Tycho often held large social gatherings in his castle, as he was a member of the nobility. He was said to own one percent of the entire wealth of Denmark at one point in the 1580s. He also kept a dwarf named Jepp (who Tycho believed was clairvoyant) as a court jester who sat under the table during dinner. Tycho died on October 24, 1601, several days after straining his bladder during such a banquet. It had been said, that to leave the banquet before it concluded would be the height of bad manners, and so he remained. His bladder, stretched to its limit, exploded. He died after eleven agonizing days.
However, recent investigations have suggested that Tycho did not die from urinary problems but most likely from mercury poisoning: toxic levels of it have been found in his hair and hair-roots. Tycho may have poisoned himself unintentionally by imbibing some mercury-containing medicine. Some have even speculated that Tycho may have been murdered, possibly by Kepler, (who was frustrated that Tycho was slow in sharing his life's work) though there is no solid evidence for this.

John Keane

WHAT'S... ASTRONAUTICS

Astronautics is the science and technology of space flight ie: vehicles, instruments and equipment. It applies to crewed and uncrewed spacecraft. The possibility of getting a man made obstacle into space has probably taxed many of the great thinkers. However the first practical paper on the subject was published by Russian scientist Konstantin Tsiolkovsky in 1903 and today, just over one hundred years later, he would be amazed at what is happening in space technology.
The first barrier to be overcome when sending a vehicle into space is earths' gravitational pull. Huge speed has to be achieved for a space vehicle to maintain circular velocity (7.9km/s at low altitudes). At this speed it will remain permanently above the earth. As speed is increased above circular velocity the path of the craft becomes an elongated ellipse(a large oval). When the speed reaches about 11.2km/s the path becomes a parabola (imagine an object being thrown forward and up) and the vehicle will travel to infinity without a propelling force. The dilemma facing space technologists is keeping the weight of the craft to a minimum while providing the maximum fuel supply to boost it into orbit and beyond. To this end, a staging process is applied. The first and usually the heaviest is the booster or launch vehicle (a spacecraft seldom exceeds 5% of the overall launch vehicle weight.) The subsequent stages are called sustainers and each stage carries its own propellant, propulsion system and control system. Craft can also carry communications equipment, guidance and control systems, temperature resistant materials to overcome re-entry heat, independently produced power by battery or nuclear reactor and equipment to sustain the crew.
The space shuttle which is used for low earth orbit has three main engines and a booster made up of two solid fuel rocket boosters which are all reusable while its external tank is expended on each launch. The space shuttle can only put quite a small amount of weight into orbit whereas one of the largest rockets ever made-the Saturn V Moon Rocket could place almost 140 tonnes into low earth orbit.
Astronautics is developing and will develop rapidly as space missions go further out into unknown frontiers.

Marian Gunning

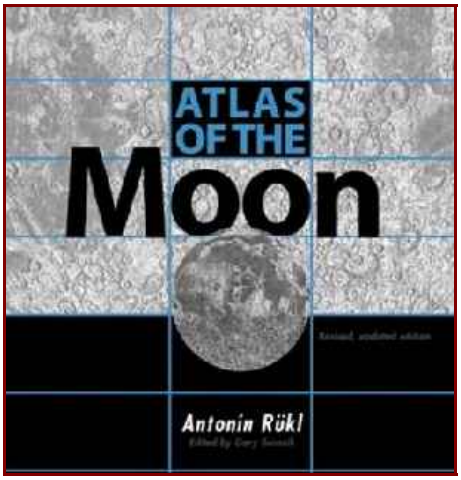
SPEIR REVIEW

Great Red Spot Junior Led Shaker Torch

I recently came across a review of this product on a website called www.cloudynights.com. The product is in essence a red LED torch that you shake to charge. I bought a similar product a number of years ago but containing a white light. Shake it for about 30 seconds and

get 2-3 minutes of light. Technology has moved on quite a bit in the last few years. The Great Red Spot Junior LED torch is smaller than my old white version, but at about 6.5 inches but it packs a super punch. Shake it for a few minutes and it will give light for up to two hours. Let it drain completely and a few shakes will give you enough red light to read your starcharts by. A few more shakes and it gets brighter. Shaken vigorously, it gives off extremely bright red light. No longer will I have to worry about batteries running out, or forgetting to charge torches, this shaker LED will remain firmly in my astronomy kit for good. And the price, $20 plus $14 for shipping to Ireland. Well worth every penny. If you fancy, there is also a white light version available. See them online at www.greatredspot.com.

Rukl's Atlas of the Moon



My recent foray into all things lunar culminated with the purchase of Rukl's atlas of the moon. I already had a good serviceable guide to the moon, a laminated lunar 100 and Virtual Moon Atlas on the laptop. Why then did i need this? Well, every other publication makes reference to it. It is one of the bible's of lunar observing. First impressions upon opening and flicking through, is that it is extremely comprehensive. 76 excellent labeled sketches covering the whole of the moon are at the core of the atlas. These are accompanied by brief notes on each label on the facing page. The start of the book features the usual info on lunar orbit, phases of the moon, the moon in the sky, history and so on. The rear of the book features 50 remarkable images showing key features. The book winds up with a section on observing and imaging the moon. The atlas has been reissued by Sky and Telescope in 2004 and is bang up to date. It is easy to use and will no doubt be a constant companion as I explore the moon. Prices vary but you can expect to pay anywhere between €25 - €40. depending on where you buy it.

Trevor O'Donoghue

Green Laser Pointers

Just a quick note to say that if anybody is looking for these, they seem to have dropped in price. They can now be had for less than €25 including shipping from Ebay. I cannot comment on the quality of these. Pointers are available from astronomy shops and suppliers, but be prepared to pay double.

MEMBER PROFILE

Name: Marian Gunning
Equipment: 10X50 Binoculars and Meade ETX70AT Go to telescope

I can't remember when I first got interested in Astronomy but when I was growing up , my older brother always had a telescope. We were very influenced by the space race and Apollo missions of the 1960's. I remember Patrick Moore excitedly breaking into tv programmes to cover Apollo takeoffs and landings. For me the most exciting part was the countdowns. My favourite programme was Lost In Space - an American kids serial about a family, a scientist and a robot trying to get back to earth. I read years later that it had the full backing of NASA and was meant to encourage interest in the American space missions. It was much more realistic than the later Star Trek. As children we thought it would be only a matter of time till everyone was traveling in space.
I joined the Civil Service after leaving college but as the dark days of the Northern Ireland troubles deteriorated I emigrated to Toronto, Canada in the early 70s. This gave me the opportunity to visit the McLaughlin Planetarium. In 1979 there was much excitement when Skylab orbital Space Station plummeted to earth.(The forerunner of the I.S.S) News reports suggested it would probably land somewhere in southern Canada. When it finally fell to earth I remember all my neighbours were out on the street looking skywards. Luckily for us it came down over Western Australia scattering debris over a wide area.
I returned to Ireland in the 80s and renewed my interest if Irish ancient history. I took a higher diploma in Local History at Maynooth and wrote a couple of small local history books and articles for journals. The one thing I could never figure out was Irish Mythology. To my surprise when I read it for a second or third time I noticed parallels with astronomical phenomena. For instance Cu Culainn's charioteer was called Loeg mac Riangabhra. If this was a misspelling it could be Lui na Greine Gobhair (the sunset horse). This creature was found universally in world mythology and was the conveyor of celestial bodies across the heavens. I know the myths are heavily embellished and long winded and after ten years of research I am still peeling away the layers. I suppose you could say my interests lie in ancient Irish astronomy and megaliths.
To come back to the present I was part of the large crown that turned out on Ashe street Tralee in 1997 to see and hear Commander Neil Armstrong. What a thrill! A few years later ITTralee held a Science Fair and one of the speakers was Gregory H Johnson of NASA. He had slides and a question and answer session which was very interesting. I suppose the icing on the cake has to be the founding of Kerry Astronomy Club.

Marian Gunning

Banna Beach News

Our observing site has gone under modifications in the last few months. Kevin Lawlor had his eye on the ball and the council, as they were working near our observing site. Spotting a load of cement left over from a job. Kevin informed them that we frequently use the area to observe and if they had no use for the cement, it could be used to our advantage. Well, our observing location now boasts six (I think, it is always dark when I see them) concrete bays. Each perhaps four foot by six foot. Ideal for setting up scopes and keeping everything to hand. Just don't drop any eyepieces. Well Done Kev.
On a stranger note, we have observed some phenomenon not of an astronomical kind at Banna during recent observing sessions. At an

observing session a few months ago Michael Scully and I observed a weird fluorescence on the grass at our observing site. It was barely noticeable but seemed to become more apparent when trodden upon. It would then fade away. The florescence was a bluey green and was in sizes from a mm or two to .5cm. We put this down to stuff from fireworks at Halloween or from those luminous neck/headbands that kids wear. Anyway, a few months later we observed it again and this time Paddy and Kevin saw it also. You can pick it up when it is on sand grains or grass but when you shone a light on it it disappears. We do not know what it is, but I am putting it down to a fluorescent bacteria (If one exists). If anyone reading this could shed any light on the matter it would be greatly appreciated.

IFAS Podcast

Irish Federation of Astronomical Societies are now producing podcasts, that you can download and listen to. To get to them just log on to http://www.irishastronomy.org and follow the links. Keep an ear out for yours truly (me) in a new section which features an in-depth guide to a constellation or area of the sky every month. This section is designed for beginning to intermediate observers who have seen most of the obvious stuff in a particular constellation but are now looking to go a little deeper in that area of the sky.

Our New Library

Hi folks, just to let you know we will be introducing a library feature to Kerry Astronomy Club over the next few months. Recently we received a kind donation of four Astronomy related books from the estate of the Late Anthony Hannon of Hannon's Menswear in Castleisland which spurred me on to formalise an idea I have had in the back of my mind for a long while. Anyway these books and a collection of Sky and telescope magazines spanning 3-4 years donated by Michael O' Connell from Tullamore Astronomy Club will form the basis of the Library. Hopefully we can grow this over the next few months and years. If anybody has any astronomy related books that they want to lend out (but still own)just let me know and I can add them to the list, or if you have books you want to donate to the club, they would also be greatly appreciated. There is no point having them sitting on a bookshelf gathering dust when they could be put to use educating people about the night sky. To compliment the book section of the library we will hopefully be adding a few small telescopes to the library. These small scopes will really be only suited to viewing the moon and the brighter planets and open clusters.

New Committee Member

Just to let you all know we have a new committee member, John Keane. Most of you will know John from his talks at our meetings. Over the last while John has been a great help in the running of the club. I am sure you will all join me in wishing John well and thanking him for his work and dedication to date.

Telescope-service.com

Just thought I would mention this company based in Germany. I recently purchased a tripod from them. I ordered in on a Friday and it was delivered on the following Wednesday via UPS. The level of service and pricing is phenomenal. I am not the only one who thinks this. Other astronomers throughout Ireland have had similar experiences to me. So, if are looking for anything from an eyepiece to a scope why not check out www.telescope-service.com. You will be pleasantly surprised at the range and price of stock.

OBSERVING REPORT

October 20-21st

Friday the 20th was cloudy with the odd shower but with the Orionid Meteor shower peaking over the next few nights a check of the forecasts, particularly the Astronomy forecast on www.metcheck.com, which gives detailed cloud cover at several altitudes, showed worsening conditions up till 7pm but then clearing till after midnight. So the club SMS text was sent out by Paddy at 3pm. under worsening conditions. By 5pm it was raining but true to the forecast it stopped and was clear by 8:30. So, off to Banna beach.
There we were greeted by clear skies with the Milky Way magnificent overhead. First item on the list was comet M4/Swan, the interstellar visitor low in the northwest. Easily found with a pair of 10x50 binoculars, in the telescope it showed a faint tail for about 2 degrees and a bright coma with a stellar like nucleus. Early in the night there was a background star close to the nucleus almost drowned out by the brightness of the coma. This showed the comets motion dramatically over just ten minutes.
We had the usual three Dobsonian telescopes as well as a few pairs of binoculars.
Paddy then moved on to Uranus to show the planet to Matthew and his Son? Not terribly impressive but the brightest Solar system object above the horizon at the time. Before moving on to the summer messier objects, Paddy stopped by Neptune.
Paddy continues
"While in Capricorn I took a look at the globular *M30*. Its not the most impressive globular but it is very easy to find. I like globulars. I moved back over to the left toward Aquarius to the globular *M2*. This is a lovely globular and I am embarrassed to admit it was my first time seeing it. How could I have missed M2 ! A few degrees south east back toward Capricorn I looked at Globular *M72*. It was one of the smallest and faintest globulars I have found but it was another Messier first for me. Just below it was another strange messier object *M73*. It is recorded as a star cluster but I think Charles must have had something in his eye at the time of its discovery. There is almost nothing there, just a few stars of similar magnitude. Trevor explained to me that it was simply an "asterism". I later found out that it is a possible star cluster remnant. This must be the worst insult you can give to any star ! Anyhow I chalked it down as another Messier object but I won't be going back there too soon. Since I was in the mood for globulars I moved swiftly over the King of globulars *M13* in Hercules. It is so bright that I can easily view it with the 9mm eye piece. Possibly the most spectacular view in the sky. Then I moved on up to its slightly less bright neighbour *M92*. Another nice globular, then on to the Andromeda Galaxy *M31* and *M32* the small satellite Galaxy. It looked great as always. Then on to another first for me, the three star clusters in Auriga *M36*, *37* and *38*. M37 is one of the finest star

clusters I have seen. M36 and 38 are OK. After the mandatory visit to *M81* and *82 *Galaxies in Ursa Major Michael showed me the cats eye nebula. Another first for me. It is damn hard to find. I finished up with a view of *M1* crab nebula in Taurus. This is faint and a bit disappointing until you remind yourself that it is the remnant of the famous 11th century super Nova. "
Meanwhile Trevor was working his way through Perseus for an upcoming podcast for IFAS. This is a great way for anyone to learn a particular constellation. It means that you have to make the time to learn all the objects of note it contains and then to go out and locate them. He showed us many an object there that none of us had previously seen like the mini dumbbell nebula
I am afraid that I was not as organized, just happy to browse around from object to object while keeping one eye open for the first of the Orionids and I was not to be disappointed. At about a quarter to twelve the sky was lit up by a bright (Mag. -5 approx. certainly brighter than Venus ever gets) fireball that traversed most of the sky directly overhead from East to West, leaving behind a short lived but bright trail. In the next half an hour as the cloud began to return we saw another 6 Orionids and a couple of sporadics. All Orionids were bright and each left some evidence of a trail. They were most impressive with some even being visible through the gathering cloud cover. By one am we had, as predicted, a completely overcast sky. So it was time to pack up and head home.

Saturday 21st was partially cloudy but with promising clear spells and following the previous night's success we headed off for Banna again. Once there we had 50% cloud cover with the odd shower forcing a retreat to the cars. But in the clearance after the showers the sky was beautifully black and clear. The Milky Way could be traced from horizon to horizon with even the fainter sections in Auriga and North of Orion being visible! Given the spectacle of such a dark sky we left the telescopes in the cars and concentrated on naked-eye and binocular observing. We had expected to see many more Orionids but only saw about 4 over the course of the night from 9:30 to 2am. We did have however a very memorable night under the stars.

Thinking of Buying a scope soon. There are a few simple rules to follow before you buy. Avoid any telescope that makes claims such as 250/350/450 times magnification. Magnification is not important, The size of the lens or mirror in the telescope is. Do not have exceptionally high hopes about what you will see through a telescope. Any decent telescope will show you the craters on the moon in stunning detail, the moons of Jupiter, the rings of Saturn and a wealth of galaxies, nebula and star clusters. Even with the largest telescope, you will not see any of the vivid colours you see on pictures. You need long exposure photography to bring out colour. A decent tripod is essential for any telescope, and is as important as the telescope itself. If in doubt talk to someone who knows before you buy. Feel free to email or call me and I will try to help.

Michael Scully and Paddy Stack

LUNAR OBSERVATION SESSION 1st NOV

We held our second ever Lunar Observation Session on 1st November. With the moon just past first quarter. But first we had a quick look for Comet M4/Swan. With the Moon's interference and the comet fading it was a challenge to see in binoculars and unimpressive in the telescope with no tail discernible. Then we concentrated on the Moon and in particular along the terminator.

Starting at the North, the first port of call was Sinus Iridium, a large crater with nearly half of its wall missing. Number 14 on the Lunar 100 it is also known as the Bay of Rainbows on the northern edge of Mare Imbrium. The small crater in its wall is Bianchini. To its east is the Straight Range and further east is the 60 mile/100km diameter walled plain of Plato surrounded by its 7000ft mountains.
Further south and to the east of the young Copernicus we had 32km diameter Kepler with its 8300 ft crater sides peeking out of the dark. Below it Gassendi P just showing its mountain tips poking up into the sunlight.
Towards the South we had a great view of the elongated crater of Schiller (as seen in pic), possibly caused by a double impact at a shallow angle it is over 100 miles long but only 43 wide.
To the East is the recent impact crater of Tycho. Named after Tycho Brahe, whose exacting observational studies of the motion of Mars in the late 1500's, permitted Kepler to formulate his laws of planetary motion.
Michael Scully

LUNACY

Hi Folks and welcome to a new section on the moon. Each issue we will cover two or three Items on the moon to observe. Letting you know when to observe, what instruments you need and what you can expect to see. First up is a nice pair of double craters, Eudoxus and Aristoteles which are visible 6 days after new moon or five days after full moon. A pair of binoculars held steady will show you these but a small telescope really brings them to life. See if you can spot the central mountains in both craters. Next up on our lunar adventure is Copernicus.

This is one of the most spectacular craters on the moon and is stunning when the terminator crosses it. Keep an eye out for the mountains surrounding the crater which can be seen extending into the darkness of lunar night. Copernicus is best seen

2 days after first quarter or 1 day after last quarter.
Finally I want to mention something I recently observed and which I found stunning, and that was a sunset over the crater Endymion. Over the course of an hour or so, I actually watched some areas of the crater walls that were in brightness shrink in size and disappear. Stunning, and a sight I will remember for a long time to come. See if you can spot this, two days after full moon. If you manage to catch Endymion, why not look to the south to Mare Crisium and see if you can spot wrinkle ridges and remnants of craters hiding along the western (left as you look at the moon with your naked eye) shore.

TRANSIENT LUNAR PHENOMENON

There have been reports of Transient lunar Phenomenon (TLP) or Lunar Transient Phenomenon (LTP) on our moon going back as far as 557AD. In 1940 Observers at Worms in Germany noted a star like spot on the dark side of the moon. Since then, reports of TLP's have been on the increase. Transient Lunar phenomenon are short lived phenomenon observed on the Moon. These can consist of red glows, flashes, obscuration, and abnormal albedo and shadow effects. Despite an increasing amount of reports of TLP, actual photographs or convincing proof of activity is hard to come by. This lack of overwhelming proof and the mysterious nature of TLP have led to TLP receiving a bit of bad reputation in the past. Reports of faces on mars and lost cities on the moon have done little to help TLPs' reputation. In recent years TLP seem to have entered the mainstream again with The Association of lunar and planetary observers leading the way in gathering and planning serious scientific observations of the moon. TLP's can be broadly classified into a number of different categories. These classifications are based on a piece of research by Winifred Cameron, one of the leading TLP researchers. The categories for TLP are

1.) Bright
2.) Dark
3.) Red
4.) Blue
5.) Gaseous

These classifications simply relate to areas of the moon that are showing temporary unexplained brightness, darkness, or areas with reddish, or blue tinges or blurriness. Each of these categories can be broken down further if needed.

The interesting thing thing about TLP is that a handful of geographical features can account for a lot of the reports of TLP.
According to Cameron in a paper entitled "*Analyses of Lunar Transient Phenomenon Observations from 557-1994*" 12 sites on the moon are responsible for over 60% of the reports of TLPs. These sites are Proclus, Theophilus, Piton, Alphonsus, Plato, Tycho, Copernicus, Gassendi, Aristarchus, Herodotus, Schroeter's Valley and Grimaldi. If we take Aristarchus, Herodotus and Schroeter's Valley as one feature, it has been responsible for fully one third of TLP's.

Most of the 12 sites mentioned above have features consistent with active volcanism in the past, such as domes, or riles. The isolated peak Piton, actually lies on top of a mare ridge, and has a summit crater. This shows that piton was formed after the wrinkle ridge formed as the moon cooled.

TLP's by their very nature are elusive and so actual evidence, photographic, video or simultaneous observations by numerous observers is hard to come by. Evidence does exist but it is nowhere near as convincing enough to ensure that all astronomers, planetary scientists and Lunar Geologists believe in the phenomenon of TLPs

The causes of TLP's are also unknown but there are a few clear leaders, the first of which is Meteor Impact. It has been speculated that the bright flash from Meteor impacts may be the cause of a lot of TLP's and that the inevitable cloud of dust created from these impacts may also lead to reports of TLP's of the gaseous kind. The recent impact of the Smart 1 probe was visible from earth as it crashed on the darkened half of the moon. Another proposed cause of TLP's is the condition of the atmosphere here on earth. Many of us are familiar with nights of bad seeing when stars will not come to a point in our scopes and the moon and planets are dancing and shimmering in our eyepieces. Many belief that when observing the moon at high powers, bad atmospheric conditions on earth are responsible for reported sightings of TLP. Recent theories suggest that the moon is not as dead as was once thought and that out gassing of gases trapped beneath the moons surface may be to blame for a lot of reports of TLP's. These out gassing events may be caused by moon quakes or triggered by impact events. There is some spectrographic evidence to support the out gassing hypothesis but it is by no means conclusive. Another suggestion for causes of TLP is when the moon is battered by an increase in radiation and cosmic and solar wind from increased activity on the sun such as solar flares and CME. Here on the earth we have an atmosphere and magnetic field to help protect us, but there is neither on the moon.

The study of TLP's is an area where a dedicated amateur can make a difference. As mentioned earlier, the Association of Lunar and Planetary Observers are actively involved in the study of TLP's. They issue monthly observing lists when conditions of illumination and libations of the moon are the exact same as when certain observations of TLP's have been made previously. If a repeat observation of the TLP can be made with the same illumination and in the same feature, under the same conditions then it is safe to assume that the TLP is an artifact of the play of light on the moons surface or a regularly repeating process. To get your observing list for any month of the year plug "Association of Lunar and Planetary Observers" into Google and go to their website, find the lunar link halfway down the page and goto the lunar section. On this page there is a link to the transient section. Here you will find reports of past TLP's and a list of times when observations are required for the given month and a host of other information. If you want to get involved in TLP research this is a good starting point. Also check out "The Lunar Observer" which is a free online monthly dedicated to all things lunar. This can be found on the Lunar section of ALPO. Also keep your eyes open for the Advanced Observing programme from the Irish Federation of Astronomical Societies which has plans to begin co-ordinated observations of the moon in the hunt for TLP's in the near

future. Another site well worth looking at is ltpsearch.org. This is run by David Darling who currently is assistant coordinator of the ALPO Lunar transient phenomenon section. Use the navigation on the left to bring you to the LTP Observing manual. A primer document on LTP and how to go about observing and reporting them.

Comet Swan

As I right this, Comet Swan is in outburst. Lingering around the sixth magnitude on the 20th October, it suddenly burst into life on the 24th as it got closer to the sun. At the time of writing it has reached somewhere around magnitude 4.3, and sports a magnificent tail easily visible in binoculars. This was completely unexpected, but when you consider the sudden brightening of fragment B of Schwassmann Wachmann earlier in the year, it pays to be vigilant as you never know what will happen. I was lucky in that I got to observe both outbursts this year. The green hue in this comet and other greenish comets is due to a poisonous gas called cyanogen. This gas was also present in Halley's comet, and can help to explain some of the comet fever and fear of the earth passing through a poisonous gas cloud as Halley swept by in 1910. Hopefully 2007 will be as good or an even better year for comets than 2006 was. Hopefully it will bring with it some more spectacular comets.

THE PLANETS FOR WINTER

Mercury – Visible in the dawn skies during the first half of December. It moves to the dusk skies late in January and in February it is well placed. See if you can spot its crescent shape in a telescope.
Venus – Low in the dusk sky for December but rising higher through January until it is dazzling in February.
Mars – in the dawn sky through to February
Jupiter – in the dawn sky in December, but rising earlier as winter progresses.
Saturn – Rising earlier and earlier and is well placed for observing at a decent hour in January and February.

A VIST TO GREENWICH OBSERVATORY

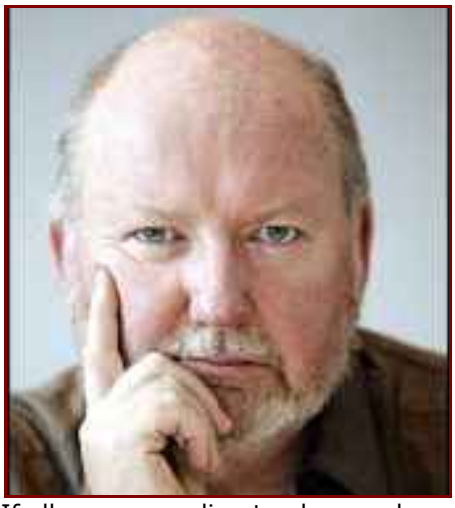
On Sunday 24th.Sept.06, while I was in London for 5 days,I decided to visit the Greenwich Observatory and Maritime Museum. As I was staying in Kensington, I took the Piccadilly line underground train from Kensington to Green Park tube station where I changed trains. I then got the Jubilee line train to Canary Wharf. I got out at this station and then got the Docklands Light Railway train to Greenwich village. Total time for this journey was about 45 mins.

On arrival at Greenwich, the 1st item of interest was the Cutty Sark sail ship that is permanently moored by the banks of the river Thames. People can go on board for a guided tour. A few minutes walk from the ship I then arrived at the entrance to the Museum and Observatory. There is no entrance fee, so I made my way along a pathway leading up a

hill to the Observatory. This is the location for the Central Meridian,where East is marked on one side of a line and West to the other side. There is an observation deck where various buildings of interest are marked out on a chart attached to the wall of the observation deck. There are spectacular views from this deck, looking down at the Dome and out to the east of London city. Once inside the Observatory PHOTOGRAPHY WAS NOT ALLOWED, there were signs all over each room to that affect. In each room there were on display instruments and telescopes used by the early astronomers of the day. Having spent over 1 hour there, I then went to the Marine museum. Again entrance was free.
This is a marvelous place to visit and again PHOTOGRAPHY WAS NOT ALLOWED INSIDE. The museum covers 3 floors and is full of the most amazing instruments used by ancient mariners to guide them on their journeys, especially the instrument used to calculate Longitude. In the Maritime museum there is a domed shaped cinema where astronomy related films are shown are various times during the day. There is an admission fee of £3 or £4 to the cinema. In the building there is a restaurant and a souvenir shop where a wide variety of items are on sale. Lastly there is a wonderful park situated between the Observatory and the Museum. People can sit and laze around without hindrance. Having spent 7 hours there, I left having spent a small fortune in the gift shop.
I can truly recommend this trip to anybody who is going to London and who has spare time or is intending to make this a place to visit.

Kevin Lawlor

LEO ENRIGHT, TOM CREAN & MARS



If all goes according to plan, we hope to have Leo Enright with us in February to give us a talk on what Tom Crean, and mars have to do with each other. We hope to have

this talk free to the public, and hopefully we will be able to use the occasion to let people know about Kerry Astronomy Club. With this in mind we will increase the circulation run of Spéir and hopefully get it into the hands of interested parties. For those of you new to KAC The following article gives a little information on the club and our activities.

KERRY ASTRONOMY CLUB

Kerry Astronomy Club is now starting into its fourth year and hopes to continue as before. At the heart of Kerry Astronomy Club are our observing sessions. We hold these as often as the weather allows and use them to study the night sky. We look at clusters, nebulae, the moon and the planets and any visitors to our skies like comets. We also try and hold observing sessions that tie in with major sky events such as meteor showers. Each year we hold a number of public observing sessions where the public get to look at the wonders of the night sky. Complimenting our observing sessions are our monthly talks during which we discuss whats to see in the coming month, what we saw in the previous month and hear a talk on a particular area of interest such as space probes or meteors etc. We also hold a summer day trip and a Christmas social.

NEWS BITES

No Ice at Lunar South Pole

Alas, the moon is not for winter sports. Never mind the difficulty of a triple axel in a bulky spacesuit (though the diminished gravity might help) -- ice, it turns out, is hard to come by up there. That's the latest word from astronomers at Cornell and the Smithsonian Institution, who used high-resolution radar-mapping techniques to look for ice deposits at the lunar poles. Their research appears in the Oct. 19 issue of the journal Nature.

The researchers, led by Donald Campbell, professor of astronomy at Cornell, analyzed radar transmitted to the moon from the Arecibo Observatory in Puerto Rico and received 2.5 seconds later at the Robert C. Byrd Green Bank Telescope in West Virginia. Using 20-meter resolution, 13-centimeter wavelength radar, they looked at areas around the lunar south pole where earlier low-resolution images had indicated a high circular polarization ratio (CPR) -- a possible signature of low-temperature water ice.

They found similar high CPR values. But they also found that those values are not confined to areas that stay cold enough to sustain ice; they occurred in sunlit areas as well, where temperatures can reach 243 degrees Fahrenheit (117 degrees Celsius) and ice would evaporate rapidly. That indicates that scattered rocks associated with young impact craters are more likely the causes of the high CPR.

Accessible ice would be a valuable resource for any long-term human presence on the moon, but reserves could only exist in deep, permanently shaded craters at the poles, where the temperature doesn't rise above about -280 F (-173 C), Campbell said.

Previous data had given the search for lunar ice a boost, including 1992 radar data indicating ice deep in craters at the poles of Mercury, 1996 radio data from the moon taken by the Clementine orbiter and the Lunar Prospector Orbiter's 1998 discovery of an elevated amount of hydrogen at the lunar poles.

But the elevated hydrogen level could come from other sources -- solar wind, perhaps -- and subsequent radar data has failed to show any evidence of ice deposits. Campbell says the new data should close the door on the debate.

"This is much higher resolution than we've ever done before," said Campbell. "We put the nail in the coffin in terms of the fact that these high CPRs are correlated with presence of rocky, blocky material around young impact craters. The assumption of many people is that high CPRs must indicate the presence of water ice. What we're saying is, that might not be the case. "There is always the possibility that concentrated deposits exist in a few of the shadowed locations not visible to radars on Earth," he added. "But any current planning for landers or bases at the lunar poles should not count on this."

The Arecibo Observatory is operated by the National Astronomy and Ionosphere Center at Cornell for the National Science Foundation (NSF). The Green Bank Telescope is part of the National Radio Astronomy Observatory, which is operated by Associated Universities for the NSF.

Lights Out for Global Surveyor

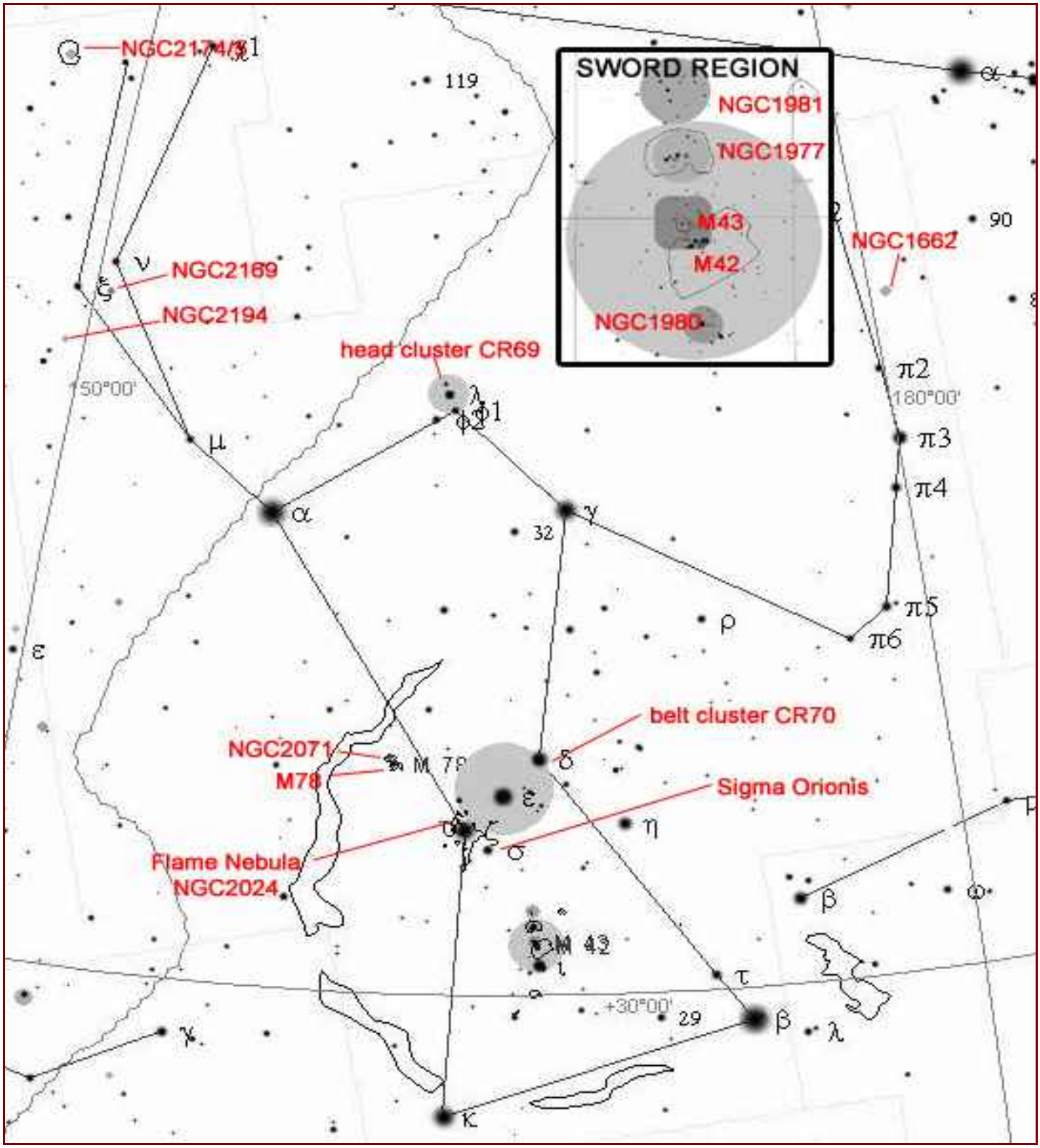
NASA's Mars Global Surveyor has likely finished its operating career. The spacecraft has served the longest and been the most productive of any mission ever sent to the red planet. "Mars Global Surveyor has surpassed all expectations," said Michael Meyer, NASA's lead scientist for Mars exploration at NASA Headquarters, Washington. "It has already been the most productive science mission to Mars, and it will yield more discoveries as the treasury of observations it has made continues to be analyzed for years to come." Its camera has returned more than 240,000 images to Earth.

The orbiter has not communicated with Earth since Nov. 2. Preliminary indications are that a solar panel became difficult to pivot, raising the possibility that the spacecraft may no longer be able to generate enough power to communicate. Engineers are also exploring other possible explanations for the radio silence.

"Realistically, we have run through the most likely possibilities for re-establishing communication, and we are facing the likelihood that the amazing flow of scientific observations from Mars Global Surveyor is over," said Fuk Li, Mars Exploration Program manager at NASA's Jet Propulsion Laboratory, Pasadena, Calif. "We are not giving up hope, though."

A few of the mission's many important discoveries about Mars include:

- The spacecraft's camera found gullies cut into many slopes that have few, if any, impact craters. This indicates the gullies are geologically young. Scientists interpret this as evidence of action by liquid water, essentially in modern times.
- The mineral-mapping infrared spectrometer found concentrations of a mineral that often forms under wet conditions, fine-grained hematite. This discovery led to selection of a hematite-rich region as the landing site for NASA's Mars Exploration Rover Opportunity.
- The magnetometer found localized remnant magnetic fields, indicating that Mars once had a global magnetic field like Earth's, shielding the surface from deadly cosmic rays.
- The camera found a fan-shaped area of interweaving, curved ridges interpreted as evidence of an ancient river delta resulting from persistent flow of water over an extended period in the planet's ancient past.
- A long life allowed Global Surveyor to track changes through repeated annual cycles. For three Martian summers in a row, deposits of carbon-dioxide ice near Mars' South Pole shrunk from the previous year's size, suggesting a climate change in progress.



ORION : BEYOND M42

As we spend so much time studying Orion over the Winter, it will do no harm at all to mention a few of the other objects that are visible apart from M42, the Great Orion Nebula. Seeing as M42 is the highlight of Orion, lets start there and turn our binoculars on the Sword of Orion. The whole sword of Orion is rich in Nebulae and clusters. Running from the South up we have NGC 1980 a small cluster and nebulosity, M42 and the trapezium, are above that. M43 is between M42 and The Running man Nebula, NGC1977. Finally, north of NGC1977 we reach NGC1981. Lets start with M43 which is just northeast from the great Orion Nebula, M42, and in reality forms part of the same complex. In the heart of M43 lies a bright star which goes by the name of HD 37061 and is easy to spot at mag 6.75. M43 surrounds this star. Look for the famous fish mouth separating M42 and M43. The fish mouth appears as a dark lane dissecting the bright nebulosity. M43 is visible in all instruments from 10X50's upwards but in a larger scope it is much easier to see and particularly striking in the scope is the way the nebulosity seemed to stop suddenly on the eastern side. Moving to the far side of M42, there is a very sparse open cluster which is surrounded by nebulosity NGC1980. The most striking thing about this is the haziness around the bright star Iota Orionis. Again the nebulosity is visible in all instruments from 10X50's upwards. Also within NGC 1980 is a nice wide double or optical double with contrasting colours. The colours are similar to Albireo and were better seen with the 10X50's than in any larger instrument.

Moving north from NGC1980 and back up past M42/43 we come to NGC 1977, "The Running Man Nebula" and open cluster Again a hint of nebulosity is seen around the brightest star in binoculars but it is in a telescope that the most detail can be seen. The nebulosity is easily seen under low powers but when the power is pushed up, the dark lanes between the stars are visible. However, despite the fact that it was easy to differentiate between dark and brighter areas, the distinctive running man was not seen. This is a nebula that can well cope with high powers on nights of good seeing. Another nebula worth tracking down is "The Flame Nebula" or NGC 2024. This is found less than a degree to the NE of Zeta Orionis which is the left hand star of the belt of Orion. It lies between Zeta Orionis and a sixth magnitude star (HR1970). This nebula is visible in low powers against a brighter background. I could not see this in the 20X80's but it was visible in the 8". At first it was hard to spot but then, once spotted, it was hard to miss. I was not the only observer to notice this , I have seen it happen a couple of times. If you don't see it at first, recheck your star chart and make sure you are looking in the right area. You will be rewarded. Again the dark against lighter was easily seen, but I seem to remember that this nebula was much more striking when I observed it last year. I guess this is one nebula that is really at its best under excellent conditions. The background nebulosity is quite extensive and is about the size of a full moon.

Before looking at more nebulae, why not check out a nice multiple star system Sigma Orionis. This is located about a degree southwest of Zeta Orionis and is visible to the naked eye. Turn a pair of binoculars on it and you will see that it is made up of a few components. Right alongside Sigma Orionis is another lovely multiple called Struve 761, which itself splits into three stars making up a tight isosceles triangle. Sigma itself split into four components and on the far side of Sigma from Struve761 lies a single star which adds to the view. I am not crazy about double or multiple stars but this one is definitely worth a look.

Now back to nebulae and a double nebula which can be found about two degrees to the north and slightly east of Zeta Orionis. These nebulae are M78 and NGC 2071. Both are easily visible in larger binoculars and are easy in a scope. M78 is more condensed and a pair of stars can be seen in NGC2071. The whole area of Orion is surrounded by nebulosity and here and there brighter patches are easily seen.
If you have had enough of nebulae then Orion also is home to a lot of star clusters. Back to the sword and at the very top of the sword is a small zig zaggy cluster known as NGC 1981, also known as Orion's crown. This small open cluster is loose and sparse and to be honest does not do much for me. Now, a cluster that is truly spectacular, is the stars which make up Orion's belt. The three brighter stars are the centre pieces of a wide cluster sprinkled with hot blue/white stars. This cluster fills the field of view in my 20X80's and is one of my favourite sights. It is a must see and is best seen in binoculars. When you are looking at this cluster, keep an eye out for the arcs and lines of stars that are readily visible in and around the two most westerly of the belt stars.

Another loose open cluster can be found in Orion's head, around the bright star Lambda Orionis. Again this wont knock your socks off but is worth a look all the same.
From Orion's body and head we move to his club and look for open clusters NGC2169 and NGC2194. NGC2169 is found on the apex of a triangle pointing SW with XI and Nu Orionis. In binoculars and telescopes it appears to contain a few stars, Leading off to the east of this cluster is a line of stars. When you reach the last star drop down about a degree to find a patch of nebulosity called NGC 2194. This is in fact an open cluster but appears as a hazy patch in binoculars. Why not turn a scope on it and see if the nebulosity resolves into stars.

In the area at the top of Orion's club can be found NGC 2174/2175. This appears to be a region of extended haze around a faint star. When I was observing this, conditions were rubbish and it definitely deserves a closer look.

Lastly we move to Orion's shield and find NGC1662 , which is a lovely cluster, it is sparse but pretty, it has a condensed core with an asterism like Corona Borealis, and has some nice colours which are particularly striking in the scope. For me this cluster was a hidden gem and I will definitely be coming back for more.

Despite the fact that this piece was called beyond M42, I am afraid I have to touch on it. On the night of 24th Nov, A few KAC members held an impromptu observing session. The seeing and transparency were good but there was a hell of a breeze which made it all but impossible to do any serious observing. However, towards the end of the night I did for the first time get to see a hint of colour in M42. I thought this was wishful thinking but got Michael Scully to confirm it. We observed a ruddy, pinky, browny colour on what I think was the Northwestern edge of the nebula. Just a pity there was such a horrible wind present. It just goes to show you that you never know what you are going to find in the sky.

I hope you get some time over the next few months to spend with Orion and have a chance to explore more than M42. Also keep an eye out for other deep sky stuff in Orion. There is more to see than I have covered here.

Recent Meteorite found in Canada may provide further clues in the hunt for Life.

Life on Earth, we do not now how it formed, but three competing theories seem to be at the forefront. Theory one is that life evolved completely independently on earth from simple elements using an energy source such as the sun, lightening or heat from the earth. Theory number two is panspermia: Basic Life arrived here on the back of a meteorite or comet, took hold and evolved. Theory number three, seems to be a recent arrival in terms of publicity and that is that meteorites carried organic compounds which became the building blocks of life to earth. Once this initial stage of creating complex organic compounds is achieved, some say, life is inevitable. Recent research on a meteorite found in Canada in 2000 shows that it contains organic material from the early solar system. Studies on the material show that it formed at a temperature of almost absolute zero and probably in the early solar system. This type of material was around long before life evolved almost 4 billion years ago and has been raining down on earth since its formation some 4.5 Billion years ago. This Meteorite could contain clues that help us get closer to figuring out how life started on earth, and ultimately if we are unique in the universe.

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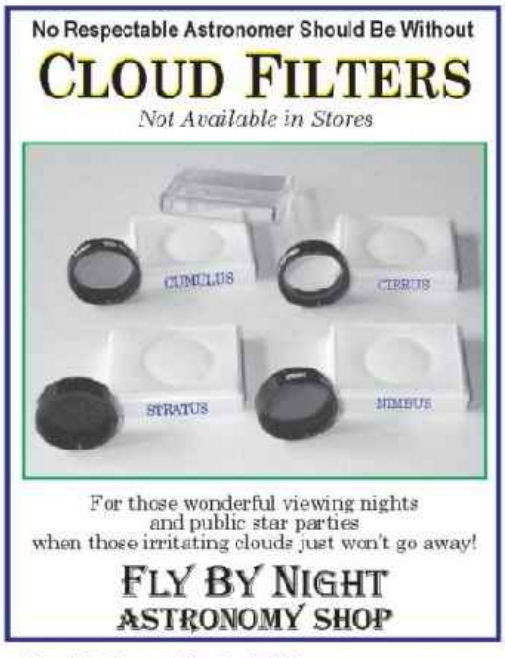
A small and varied sample of Images being produced by Irish Amateurs. The Photo of Comet Swan was taken By Keith Geary. this is a 2 minute exposure plus three dark frames, ISO 800, canon 300D, 85mm lens at f2.8. This picture captures perfectly what Swan looked like when in outburst and viewed from a dark site through Binoculars. This Picture of Nebulosity in the Orion Region surrounds the belt star Alnitak. The Flame Nebula is easily visible in an 8" scope but the famous Horsehead nebula is a much harder proposition. To see this in an 8" telescope requires pristine skies and a lot of luck, and filters would also help. That said, I still have not given up hope of seeing it with the 8" Dob from a clear night at Banna. The above picture was taken by Dave Grennan of Dublin with an 80mmCelesron ED scope, A modified Canon 300, the help of a few filters and an hour of exposure in 15X240Sec. Of the moon pics, the top one was taken by Michael Scully at Kerry Astronomy Clubs Lunar observing session on 1st November. It was taken using an 8.75" dob and EOS300D. The picture of the Lunar crater features Schiller and elongated lunar crater 108 miles long by 43 miles wide. It appears to have been caused by a low-angled meteorite impact.

Astrohumour

Sherlock Holmes and Dr. Watson go on a camping trip. After a good dinner and a bottle of wine, they retire for the night, and go to sleep. Some hours later, Holmes wakes up and nudges his faithful friend. "Watson, look up at the sky and tell me what you see."
"I see millions and millions of stars, Holmes," replies Watson. "And what do you deduce from that?" Watson ponders for a minute. "Well, astronomically, it tells me that there are Billions of galaxies and potentially billions of planets. Astrologically, I observe that Saturn is in Leo. Horologically, I deduce that the time is approximately a quarter past three. Meteorologically, I suspect that we will have a beautiful day tomorrow. Theologically, I can see that God is all powerful, and that we are a small and insignificant part of the universe. What does it tell you, Holmes?"
Holmes is silent for a moment. "Watson, you idiot!" he says. "Someone has stolen our tent!"



Graphic Created by Andy Oliver, www.saaa.org