

In this issue: AGM Notice + Darke Skies + NASA's SpacePlace: + More *Controversies in Transactions with Old Boots*



Will ISON become the next *great* comet?

Picture:  
Comet West, 1976



October/  
November 2013



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### Events list

Friday 18 October: Full Moon

Sunday 20 Oct: Speaker: Dave Newton "Black Holes"

Wed 30 Oct – Sun 3 November: Kielder Star Camp

Saturday 2 November: Nissan Fireworks Display, NSLC grounds,  
6:00pm - 9:30pm.

Sunday 3 November: New Moon

Sunday 10 November: Committee meeting & workshop

Friday 15 Nov: North Pennines AONB Partnership Dark Sky Event,  
6:30pm - 10:00pm.

Sunday 17 November: **Annual General Meeting 6pm**, plus  
speaker: 7pm **Dr Vincent Eke**, Durham University:  
"Water ice on the Moon"

Also - Full Moon.

Saturday 23 November: Cygnus Night: An SAS Fundraising Event,  
Nissan NSLC grounds, 6:30pm - 10:00pm.

**The Cygnus Observatory** is open for the public 7pm – 9pm every  
Thursday night. All members welcome.

#### All Society events

- are free,
- are held in the Washington WWT facilities, and
- evening meetings start at 7:00pm

**unless otherwise noted.**

Please bring a torch and warm clothing to any night-time observing sessions.

All observing sessions are dependent upon favourable weather and **may be subject to cancellation.**

## Editorial

Dear Members,

First of all, apologies for the extended absence of SAS News. This is the first issue since before the Summer break and we would have normally issued another two issues by now. My excuse is that it's been a rotten year healthwise for various members of my family and together with work it's been really difficult to find the time. Astronomically however, it's not been too bad. I'm now running another astronomy course at Astley High School on Wednesday nights. Plus the time I've spent at Kielder has allowed me to track down many and varied NGC objects that only a dark sky and big telescope can show. So far, this year's highlights have probably been observing Saturn and dozens of Virgo galaxies during the spring months. Another unexpected highlight was seeing Barnard's Star at the last Starbeque through Graham Darke's scope. Thanks, Graham. On page 4 of this issue Graham tells us more about Barnard's Star and how to find it.

Those are the highlights of the year so far; Comet ISON promises to be a grand sight at the end of this year. But just how grand is yet to be seen. I have my finder chart already prepared and will keep a close eye on this sungrazer over the next couple of months in the hope it becomes one of the "great comets." If not, at least we have Jupiter returning once more to the evening skies, ideally placed high in the northern skies in the constellation of Gemini.

November is the Society's normal AGM time. This year, I understand that our long serving treasurer Kevin Baxter will be standing down. I would like to give my personal thanks to Kev for his long service and all the time he has devoted to the SAS over the years. Now that Graham, Lynn and finally Kev will have all stood down, it feels like the end of an era. But it has been a gradual transition and I know that the Society is in good hands. So please come along to the AGM and have your say in its future.

All best wishes - - Dave N., Editor.

### SAS Yahoo Forum

The Society's Yahoo group provides a forum for members to exchange ideas, ask questions, and a place to post their pics:

<http://tech.groups.yahoo.com/group/SunderlandAstronomicalSociety/>

# Society Update

with Chairman John Lynch

## AGM notification

With our Annual General Meeting fast approaching, all members are welcomed and encouraged to attend. The AGM is scheduled as usual for the third Sunday in November, (17<sup>th</sup> Nov) at 6 pm.

Our long standing Treasurer, Kev Baxter, has indicated that he will be stepping down from the Treasurer's role at the AGM. We would all like to thank Kev for his hard work and dedication to the Society over the past years. Ken Kirvan has indicated his interest in the role. If anyone else is interested in taking on the Treasurer's role or another society position, please contact the SAS Chairman or Secretary at **least one week** before the AGM.

Steven Carr has recently joined the committee; Henry Herron and Roy Alexander have also indicated their interest in joining the committee at the AGM.

## Other Developments

- Recent repairs to the dome by Harry Herron have rendered it almost watertight. We now also have 4 pull point handles in the dome to aide its movement. Further repairs are continuing. We are proceeding slowly through grant applications and hope to send our first one in soon.
- Named badges for SAS members are proceeding and roll-out is imminent. These are to be primarily worn at the WWT, so that the WWT staff know who we are as our membership is growing rapidly.
- We are to regain use of the side metal gate at the WWT under strict conditions, this should aid the movement of equipment at the WWT.
- We are in the planning stage of a new storage shed with a roll-off roof at the WWT. We have obtained initial permission from the WWT manager and now are awaiting plans to be drawn up and approved before its construction.
- We are in negotiations with the owners of Park Head Station in Stanhope to use their site for observing and will be conducting a test observing session

shortly. **Please note** that this is private land and no unannounced observing is permitted. I would like to thank Keith Johnson for all his help with this.

- Our new look website is being launched soon to replace the current one. I would like to thank Ian Aiken for all his efforts in this.

## Forthcoming events

We would like to announce that Pow Hill has achieved dark sky status and that we will be staging an event there on **Friday 15 November** to celebrate this in partnership with the North Pennines Dark Skies promotion team.

We have set our stargazing **Jupiter nights** event dates as **Friday 10th and Saturday 11th January 2014**.

The 2nd annual Nissan Jupiter nights has been confirmed for **8 Feb 2014** and the ticket allocation for the night has been increased to 1000 (from 500 last year).

Also, Nissan sports and Social has offered the use of their outside area, toilets and bar for a SAS Fundraiser event in November (now set for Saturday 23<sup>rd</sup> Nov) free of charge, for us to make money towards our dome refurbishments. The lights are also going to get turned off for the event. We will be charging at the door for entry and all money raised at this event is towards our new dome.

## Stay up to date

Keep up to date with all society developments on the website [www.sunderlandastro.com](http://www.sunderlandastro.com) and why not sign up for the news group. Also check out our Facebook and Twitter pages.

## Annual membership fees

Please note that this season's membership subscriptions became due from 1<sup>st</sup> September.

However, any new members who paid late in the previous season (i.e. after 1st January 2013) will not have to pay until next season. Because we're generous like that.

## How to hunt for your very own supernova!

By Dr. Ethan Siegel

In our day-to-day lives, stars seem like the most fixed and unchanging of all the night sky objects. Shining relentlessly and constantly for billions of years, it's only the long-term motion of these individual nuclear furnaces and our own motion through the cosmos that results in the most minute, barely-perceptible changes.

Unless, that is, you're talking about a star reaching the end of its life. A star like our Sun will burn through all the hydrogen in its core after approximately 10 billion years, after which the core contracts and heats up, and the heavier element helium begins to fuse. About a quarter of all stars are massive enough that they'll reach this giant stage, but the *most* massive ones -- only about 0.1% of all stars -- will continue to fuse leaner elements past carbon, oxygen, neon, magnesium, silicon, sulphur and all the way up to iron, cobalt, and, nickel in their core. For the rare ultra-massive stars that make it this far, their cores become so massive that they're unstable against gravitational collapse. When they run out of fuel, the core implodes.

The intruding matter approaches the centre of the star, then rebounds and bounces outwards, creating a shockwave that eventually causes what we see as a core-collapse supernova, the most common type of supernova in the Universe! These occur only a few times a century in most galaxies, but because it's the most massive, hottest, shortest-lived stars that create these core-collapse supernovae, we can increase our

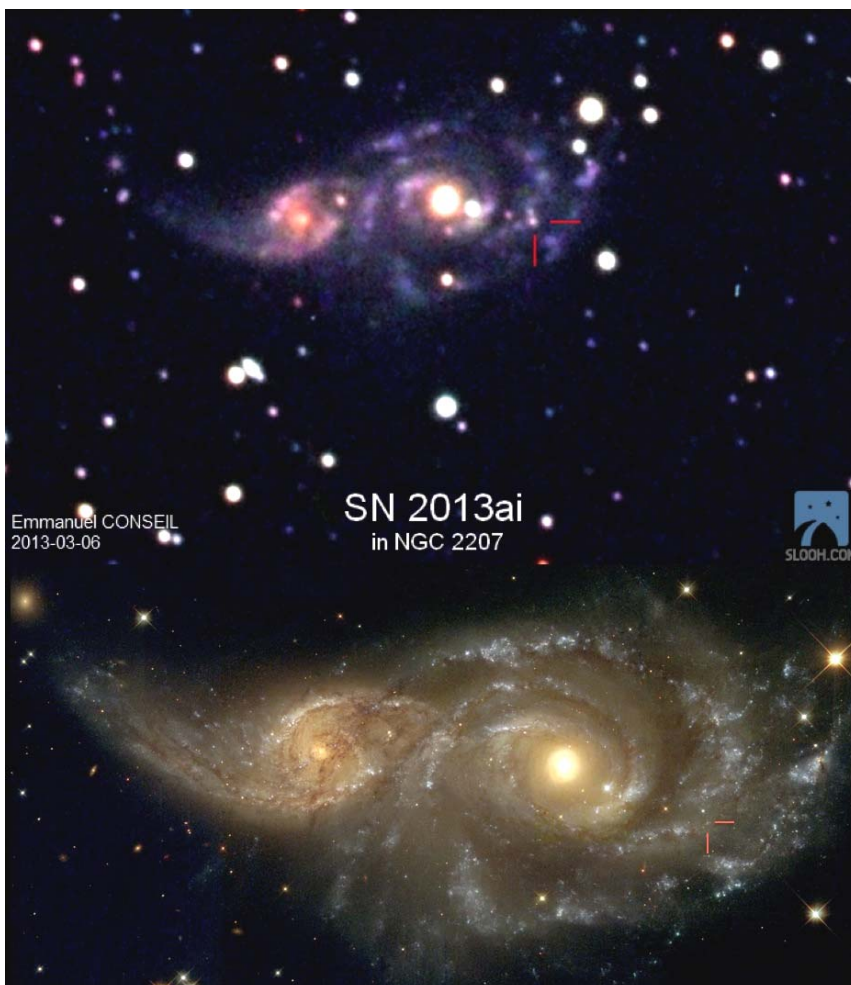
odds of finding one by watching the most actively star-forming galaxies very closely. Want to maximize your chances of finding one for yourself? Here's how.

Pick a galaxy in the process of a major merger, and get to know it. Learn where the foreground stars are, where the apparent bright spots are, what its distinctive features are. If a supernova occurs, it will appear first as a barely perceptible bright spot that wasn't there before, and it will quickly brighten over a few nights. If you find what appears to be a "new star" in one of these galaxies and it checks out, report it *immediately*; you just might have discovered a new supernova!

This is one of the few cutting-edge astronomical discoveries well-suited to amateurs; Australian Robert Evans holds the all-time record with 42 (and counting) original supernova discoveries. If you ever find one for yourself, you'll have seen an exploding star whose light travelled millions of light-years across the Universe right to you, and you'll be the *very first* person who's ever seen it!

Read more about the evolution and ultimate fate of the stars in our universe: <http://science.nasa.gov/astrophysics/focus-areas/how-do-stars-form-and-evolve/>.

While you are out looking for supernovas, kids can have a blast finding constellations using the Space Place star finder: <http://spaceplace.nasa.gov/starfinder/>.



**Left:** SN 2013ai, via its discoverer, Emmanuel Conseil, taken with the Slooh.com robotic telescope just a few days after its emergence in NGC 2207 (top);

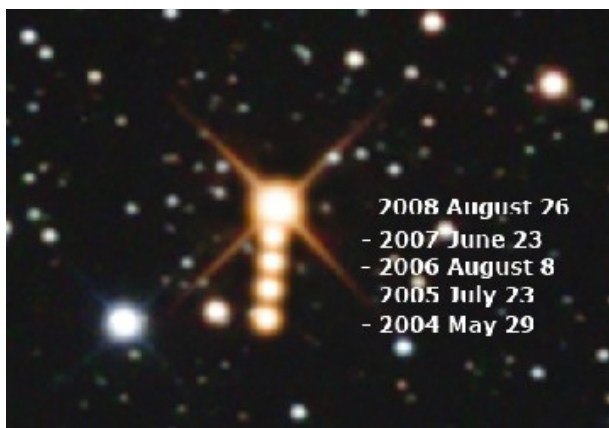
NASA, ESA and the Hubble Heritage Team (STScI) of the same interacting galaxies prior to the supernova (bottom).



## Obscure sights for Autumn nights

It's great to be writing again now that we're back into the swing of things with the nights dark enough to venture out with the scope once again.

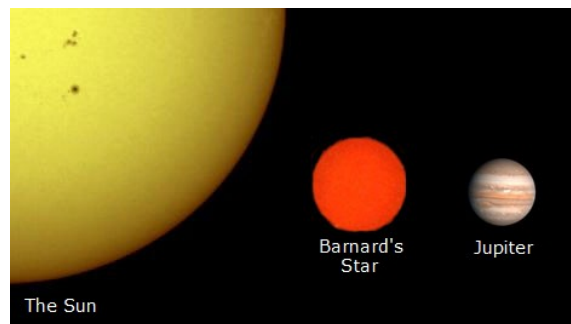
At this year's starbeque, at the beginning of September, I finally tracked down a target that I've wanted to observe for over 25 years – Barnard's Star. It really isn't that impressive to look at and that's perhaps partly why it has taken me so long to look for it. The Autumn skies are so full of bright and wonderful sights that a ninth magnitude solitary star is hardly going to be top of the observing list, but it was this year and I'm glad. Barnard's star is named after the American astronomer E. E. Barnard and is the next closest star to us after the Alpha Centauri system and, at 6 light years, is the closest star visible from the northern hemisphere. It is a red dwarf star so, despite being so close, it is very faint. It also holds the record for the being the star with the largest proper motion of any in the sky, moving around ten arc seconds per year.



**Above:** A multiple exposure showing the motion of Barnard's Star 2004 - 2008

Barnard's star can be found in the constellation of Ophiuchus the Serpent Bearer so it is well placed at this time of year just to the South West of the Summer Triangle.

To track it down, first star hop to the star Cebelrai. Then head southeast first to 67 Ophiuchi. From there move north to 66 Ophiuchi. Barnard's Star is a short hop from here and is best tracked down using a finder chart displaying stars down to about tenth magnitude. I had no problem using the chart in my trusty Collins Gem pocket star atlas. For you imagers out there, why not try taking a short (one minute or so) exposure of the field around this star once a year for a few years and track its motion.

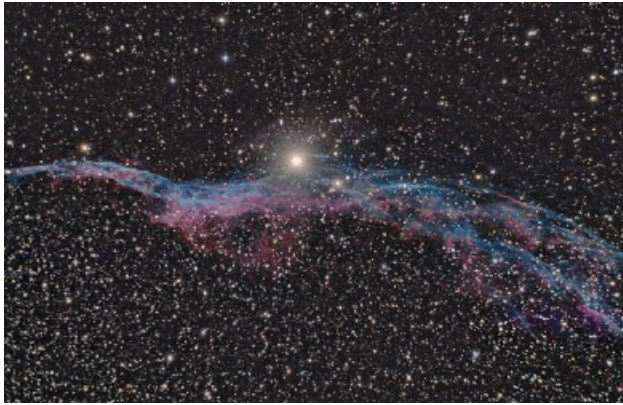


**Above:** Comparative sizes of the Sun, Jupiter and Barnard's Star.

Next on our list this month is The Witch's Broom Nebula NCG6960 in Cygnus. Together with the Veil Nebula NGC6992, the Witch's Broom makes up the "Cygnus Loop" supernova remnant. NCG6960 is very easy to find as it runs right through the field of view centred on the bright star 52 Cygni. In fact at the eyepiece the shank of the broom seems to cut right across 52 Cygni.

This object was once considered a stiff test for an observer but with the advent of narrowband nebula filters such as the OIII and UHC filter, it is now quite easy to find even in a small telescope. A dark site is important and Derwent is fine. Use as low a magnification as your scope and eyepiece collection will allow as this is a big object. It resembles a fine ribbon of twisted light. Once you've found the Witch's Broom, why not scan across to the nearby Veil Nebula which is part of the same complex of nebulosity.

Again a UHC or OIII filter is going to help pick out the object. I find the Veil is slightly brighter than the Witch's Broom.



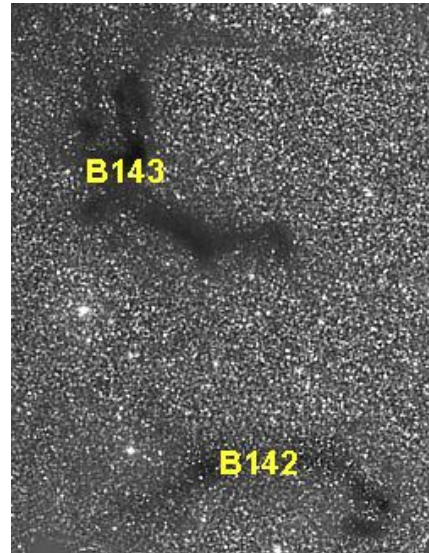
Now for a double star or rather a double-double star! Epsilon Lyra is visible to the naked eye a short distance to the northeast of the bright star Vega. Through binoculars or low magnification in a telescope it is split into a nice double star with components of equal brightness. Use a magnification of over 100x and you will see that each component of the double star seen at low magnification is itself actually a double star.



It makes for a fine sight. The orientations of the two double stars are perpendicular to each other which, to me, makes this look even better. Three of the four stars that make up the double-double are almost exactly the same magnitude with the fourth being ever so slightly dimmer.

Finally for this month, we started with one of Barnard's objects, so we'll end with another. Have a go at tracking down a dark nebula. Barnard 143 is a patch of dark nebulosity in the constellation of Aquila. Due to its large size this one is best seen in binoculars or a very low power rich field telescope. It can be found close to the star

Tarazed in Aquila and looks like a gap in the star field shaped like a giant letter E. This region is peppered with dark nebulae but start with Barnard 143 as it's the easiest to spot. Whilst at first it looks just like a region of no stars, it is in fact a huge dust cloud in the plane of our galaxy. It is very effective at blocking the light from all those stars that lie beyond it.



Because of the nature of this object, you'll need a good dark site to spot it. Derwent is plenty dark enough. Why do you need a dark site to see a dark nebula? Well the faint stars around the periphery of B143 need to be visible as these delineate the shape of the nebula. Those faint stars don't show up too well in light polluted skies. You imagers equipped with filters should however be able to capture it.



Back soon with more obscure gems from the observing memory banks!  
Until then, Clear Skies,

*Graham*

## Some Old Controversies in Transactions



With "*Old Boots*"

{An old and esteemed correspondent continues his reminiscences of the controversies which raged in the earlier numbers of this journal.}

*"By Zeus, Soddy, they'd have us out as alchemists!"*

### Things Are Tough All Over.

In one letter, for reasons still unknown, Old Bystander went on to reminisce about his days gone by in the "Garden of England." As even nostalgia isn't what it used to be, your Editor includes a short extract for your indulgence.

"During the war I was at Goudhurst a good deal and have fond memories of the motor carriage and its once weekly visit to the village selling fish and chips. While working on farm machinery at the Spelmonden Estate Co. Ltd., both "Independent Specialist" and myself would transit the half mile or so by velocipede to the village and partake in some of the best fish & chip suppers we ever had. Independent Specialist however, would never touch the rock salmon as he said it was a "bottom feeder". He always made it a point of fact to inform other customers in the queue that 'rock salmon' was the 'common dogfish' much to the disdain of the vendor."

No doubt readers will note how the past comes back to life with such golden memories.

### The Romance of Modern Invention.

"Trammel Bar" was a retired master mariner who spent the last years of his working life at the Sunderland dockyards, but had travelled the world extensively aboard ocean going tramp steamers of the Eagle Oil & Shipping Co. Ltd. And who can forget his association with the veritable Messrs.' Hedges? He was somewhat of a recluse but wrote extensively on all manner of subjects in a matter-of-fact-way: "We know" etc...

Perhaps he will be best remembered for

his lavish contributions on the veloce wheel. Hardly ever a number was issued without a note of his on the subject, and funny too were his sketches of ladies upon a velocipede; what with their pork-pie hats and parasol in hand while on their way to work in munitions factories or war hospitals. Strange how he thought his sketches incomplete without a rider.

### *Its Friday. Its Five o'clock. Sixpence Please.*

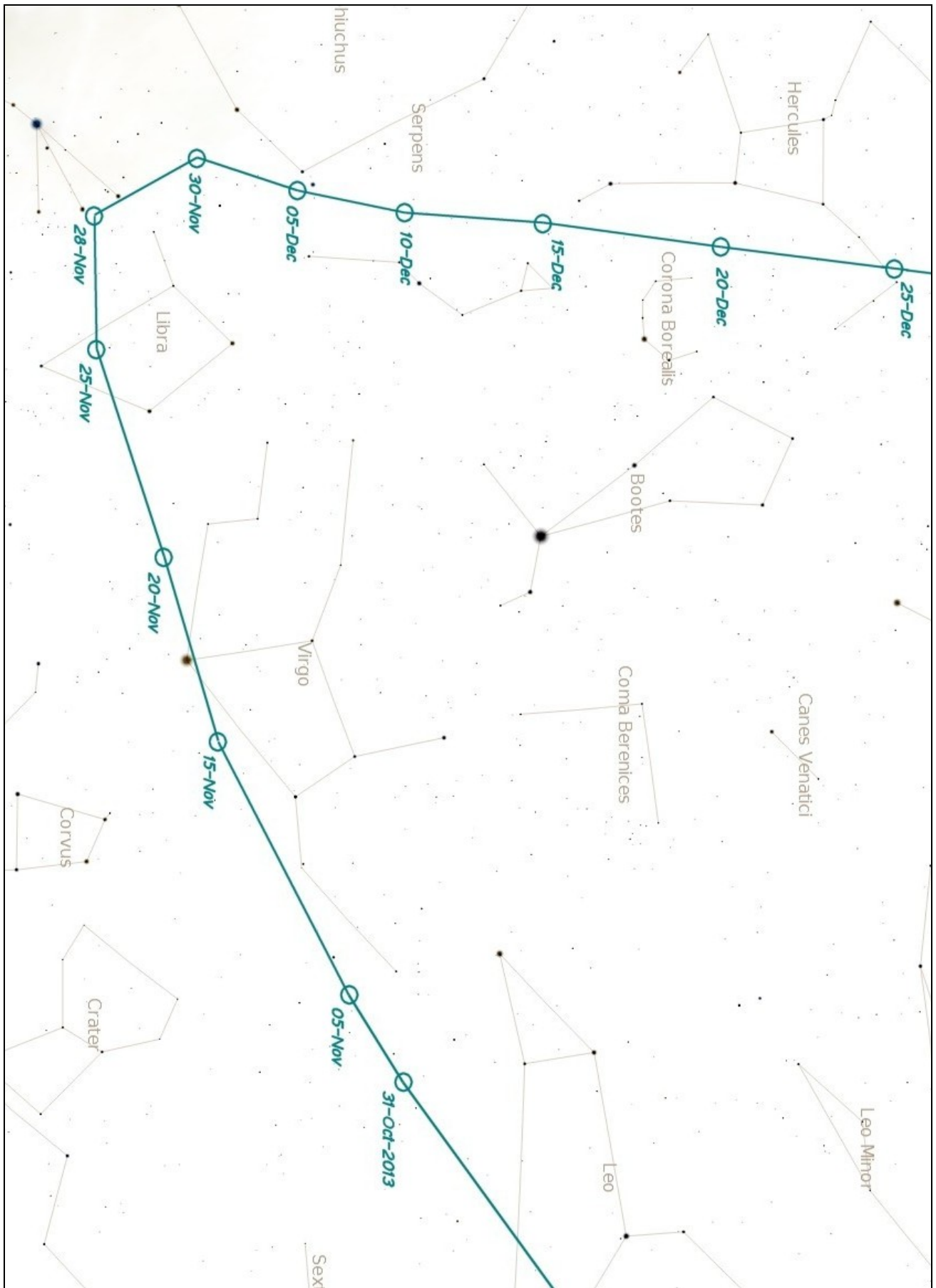
Over the years Transactions saw many 'experiments' feature in its pages, but perhaps one of the most curious was that undertaken by Messrs.' Hedges. The experiment ran for almost 15 years before its exposure by Sir Hutton Bonville (aka 'Inert Vacuum') and Mr. Appleton Wiske (Sir Dandy's brother and aka 'Hypothesis').

Every day, weather permitting, they would set people's 'pocket watches' at their observatory by means of marine chronometer set in a box and customers were charged sixpence a time for this service sine praejudicio. Of course the service was received in good faith by members of the public; but what customers didn't realise, at the cost of sixpence, was that there was no timepiece within the observatory at all! The eldest of the brothers, Privett, would observe the clock situated on Mackie's Corner (on the junction of Fawcett St. and High St.) from a given altitude and relay the time to his younger brother Benson using a system known only to shipyard and dry dock workers.\* Should the weather be inappropriate, then the excuse given would be that the key to the box was lost (!) The pair's dubious experiment was a continual success and made the pair a fine profit until their retirement to Corfe Castle, Dorset.

It has recently been noted in these pages that the brothers now sell a form of steroid to competing long distance runners and velocipede users: Although advice is given to these athletes so as not to run or veloce too fast in case they arouse suspicion amongst officials.

*\*Your Editor knows of this method employed by shipyard and dry dock workers but shall remain magis mutus quam pisces for a number of reasons.*

{To be continued...}



Comet ISON finderchart, October – December 2013