SPACEWATCH

the newsletter of the Abingdon Astronomical Society

10th December 2012

Stan Cocking Memorial Lecture:

Prof. Christian Knigge

(University of Southampton)

'Cataclysmic Variables'

Tonight is our annual Stan Cocking Memorial Lecture, when we remember Stan, one of our founder members who sadly passed away a few years ago.

Prof. Christian Knigge has come up from Southampton to give us a talk on cataclysmic variables. If you ever think you're being milked for everything you've got, listen to this talk and feel sorry for the poor white dwarves being sucked of all their matter by their all-consuming neighbours.

May I take this opportunity to wish you all a Merry Christmas and a very Happy New Year!

THE NIGHT SKY THIS MONTH

by Bob Dryden

Earth & Sun: The winter solstice is almost upon us, occurring on 21st December at 11.12 UT, at which point the Sun begins its slow trek north again. January 2nd sees the Earth reach perihelion (the point in its orbit when it is nearest to the Sun) when it will be 147,098,161 km from the Sun.

Mercury: Now a few days past greatest elongation, Mercury is moving back towards the solar glare and it will probably hard to find by the end of December. Now is the best time to look for the magnitude +0.5 planet and it is rising about 06.30 UT which is 90 minutes before sunrise. By the third week of December Mercury will rise much later and be in a much brighter sky. On the morning of 11th December there will be a thin crescent Moon, Venus, and Mercury close together in the dawn sky. Venus, Saturn and Mercury form a straight line so this will aid you in finding the much lower Mercury.

Venus: This planet is also rising just before the Sun, but is much brighter than Mercury at magnitude -3.8 so is easy to find. Like Mercury, Venus is moving back towards the Sun reaching a solar elongation of 18° by mid-January. Currently in Libra, Venus rises about 2 hours before the Sun. By January the planet has moved in to Sagittarius and rises barely an hour before the Sun. Telescopically Venus is slightly disappointing at the moment as it is close to full phase with a small apparent size of 10". The morning of 10th January brings the very nice sight of a thin crescent Moon close to Venus but they will be rather low so you will need a clear south eastern horizon.

Mars: Mars is still too close to the Sun to be seen.

Jupiter: It is very hard to miss Jupiter at the moment as it is the brightest 'star' in the evening sky at the moment. Blazing away at magnitude -2.7 close to the Hyades star cluster in Taurus, Jupiter is on view for the whole night. This gives you the opportunity to watch one complete rotation of the disc features if you are feeling hardy enough to last the night. Boxing Day evening will have the nearly Full Moon close to Jupiter.

Saturn: This is the third planet on view in the morning sky. Slowly moving amongst the stars of Libra, Saturn reaches an altitude of 25° in the south at sunrise by mid-January. This is about the highest it can get at the moment (it will only get worse in the next few years as the planet moves southwards) so telescopic views will probably not be too good. However, the rings are opening up very slowly (reaching an angle of 19° this session) so they will be visible in virtually any telescope.

Uranus & Neptune: These are the only other planets on view in the evening sky besides Jupiter. Neptune is approaching the evening twilight as the Sun moves along the ecliptic and this is probably your last chance to see the planet this apparition. Neptune is shining at magnitude +7.8 in the constellation of Aquarius. Uranus is a little bit brighter at magnitude +5.7 in Pisces so remains on view a bit longer than Neptune. In fact it is still gaining height at the time of sunset this session. Mid-December has Uranus about 30° high at sunset, and by mid-January its altitude has increased to 40° by the same time of the evening. Both planets are visible in binoculars if you have a good finder chart.

Meteors: The best meteor shower of the year has its maximum on the evening of 13th December. Active between 7th and 16th December, the **Geminid** meteor shower often puts on a spectacular show at maximum. The hourly rate is estimated to be around 100 meteors and many of them can be bright. The maximum is predicted to occur at about 19.00 UT and with no Moon to spoil the view, this is a very favourable year to wrap up warm and watch for meteors.

The second major active meteor shower this session is the **Quadrantids**. Another short shower (active between 1st and 6th January), maximum occurs on 3rd January with an hourly rate of approximately 80. Although this is a decent number, many of the meteors are faint and rapid which sometimes does make them a bit hard to see. This year, a slightly gibbous Moon rises at 23.30 UT so will be a slight nuisance in the early morning hours which is the best time to watch for Quadrantid meteors.

Asteroids: **1 Ceres** continues its trek across Taurus towards the border with Auriga. It starts the session at magnitude +7.0, reaches a maximum brightness of

magnitude +6.8 in the third week of December, before fading to magnitude +7.4 by mid-January.

4 Vesta is also in Taurus, heading towards the Hyades star cluster (which it is close to by mid-January). In mid-December it is already at maximum brightness (magnitude +6.5) and it then begins to fade, reaching magnitude +7.1 in January.
The third fairly bright asteroid this session is **9 Metis** which starts at magnitude +9.0, peaks at magnitude +8.5 on 1st January, before fading slightly to magnitude +8.8 by mid-January. Metis can be found on the Gemini/Auriga border.

So all three asteroids are well placed in the evening sky and Ceres and Vesta are easy binocular targets if you have a finder chart.

Comets: There is one comet this time that, if predictions are correct, should be visible in a small telescope. The comet is C/2012 K5 LINEAR, which may be around 8th or 9th magnitude and it is moving rapidly through the constellations. It starts the session in Canes Venatici (very close to the handle of the Plough), before crossing the Plough, into Lynx on 28th December, into Auriga 30 December, and finally into Taurus on 11th January. Predictions on how bright a comet can get are something of a black art and are often wrong but if the predictions for this one are good then it could put on a nice show so have a look to see what it is actually doing.

MOON PHASES:

New: 13rd Dec.; First Qtr: 20th Dec.; Full: 28th Dec.; Last Qtr: 5th Jan.

THE GEMINID METEOR SHOWER

by Gwyneth Hueter (with help from the SPA)

This year's Geminid meteors promise to be well worth observing – cloud permitting! The Moon is virtually at New, so won't interfere with observations. And numbers should be good. According to Meteor Section Director Tony Markham, 'Although the Perseids of August attract more observers, the Geminids of December produce higher rates. Observing the Geminids does, however, pose the challenges of enduring the cold December nights.'

This year's peak of activity is due on December 13-14, probably within a few hours of 23.30 UT. How many are you likely to see? Although the quoted rate is around 100 per hour, this is only the case under ideal conditions, which rarely apply, and includes the faint meteors as well as the bright ones. Under average country conditions you should see a meteor every two or three minutes, and from towns you would probably have to wait longer for the bright ones.

Tony Markham continues: 'The Geminids are observable throughout the night. Good numbers of Geminids can be seen from around 8pm onwards, with the best observed rates likely to be seen between midnight and 2am.

'In some ways the Geminids are like the Perseids, being rich in bright meteors. In other ways they are different, with very few Geminids leaving persistent trains – a consequence of the Geminids being more robust particles derived from asteroid 3200 Phaethon whereas the Perseids are more fragile icy material derived from comet Swift–Tuttle.'

BBC STARGAZING 2013

by Ian Smith (Chairman)

Once again the society has been invited to join the astronomers at Oxford University's astrophysics department for BBC Stargazing Live 2013. The event will be held on Saturday 12th January 2013 at the Denys Wilkinson Building, Keble Road, Oxford, OX1 3RH, between 2pm and late into the evening. The University puts on a number of displays and events for the public during the day and holds an observing session during the evening (weather permitting). Last year this was a great success with the public. You'd be surprised at what you can see from the middle of Oxford.

During the day, and throughout the evening, the society had a stand showing off telescopes, the society and amateur astronomy, answering questions about all of those things. Up on the roof garden society members use their telescopes to show various astronomical objects to the public. We also had solar scopes on hand, but the weather was against us on that one.

We would like to repeat the success of last year and so I am once again asking if you would be able to spare us a few hours of your time on the 12th January.

Even if you don't have much astronomical knowledge you can still help by telling people about the society and the sorts of meetings that we have. We will need people to man the stand, operate solar scopes during the afternoon and telescopes for the evening observing session. At a recent open evening at the University we discovered that the kids love messing around with Stellarium, so if you are familiar with that software we'd really appreciate your help. The University normally arrange for free food from their canteen and can provide some free parking. Where that's not possible the society will refund you your expenses (within reason!).

If you think you can help out then please see Ian, or email me at ian@ismith.org.uk. I'll get back to you with more details as I get them from the University. Thank you.

END OF AN ERA

Most of you will have heard by now that Sir Patrick Moore, amateur astronomer, xylophonist, TV personality and the presenter of the longest running TV programme in the world, "The Sky At Night" died peacefully at his home in Selsey yesterday afternoon.

Patrick inspired thousands of people to take an interest in astronomy – including me. I remember when I was young staying up late many a time on a Sunday evening to watch "The Sky At Night" wondering if "Everyman" was ever

going to finish, long before the days of iPlayer and even VHS recorders.

I once spent "An Evening with Patrick Moore" at the Wyvern Theatre in Swindon. I also have many of his books, of which he wrote dozens.

A rather eccentric figure, he spoke at up to 300 words a minute – not the best way to get the message across to newcomers to the subject, but his enthusiasm was infectious. On his programme, he showed just what amateur astronomers could achieve with rather modest equipment, but also brought us the latest news from the world of professional astronomy.

As well as astronomy, he often spoke on the radio and television about other topics and held many strong views on Europe and immigration.

He would have been 90 years old next March. He had presented the Sky At Night for over 50 years, covering Sputnik, the Moon landings, the Viking probes to Mars, Pioneer and Voyager, Galileo to Jupiter and Cassini/Huygens to Saturn. Who knows what the next 50 years of astronomy will bring us. Will humans set foot on Mars? Will we finally make contact with alien beings from another solar system? Frankly, I'm sceptical!

FURTHER DISCUSSION

Why not take a look at our new website? Ian has been working hard over the summer to update the website and make it a little more interactive. It's at the same address: www.abingdonastro.org.uk .

If you are not already on our internet mailing list, then why not log on to YahooGroups. The list is called 'abingdonas'. Members use the list to alert each other about celestial events and to chat about amateur astronomy. The list is quite active, with several messages most weeks. To read through previous messages click on: http://groups.yahoo.com/group/abingdonas/ .

To join the abingdonas list, please go to http://www.yahoogroups.com . You can also unsubscribe from the list here.

To post messages to the list, please send them to abingdonas@yahoogroups.com . Please note that you will need to sign up with a YahooID if you do not already have one. You can do this on the above page.

Further information about the mailing list can be found on the abingdonas webpage at : http://groups.yahoo.com/group/abingdonas/ .

Further discussion on astronomy and many other topics takes place at the Spread Eagle pub in Northcourt Road after the main meetings. You are most welcome to join us.

DATES FOR YOUR DIARY

11th-13th Dec. 8pm (first clear night) Observing evening at Frilford Heath. Ring Ian on 07557 373401 to confirm on the night.

17th Dec. 8pm Beginners' Meeting in the Perry Room.

7th-9th Jan. 8pm (first clear night) Observing evening at Britwell Salome. Ring Ian on 07557 373401 to confirm on the night.

14th Jan. 8pm Talk by Prof. John Miller (Univ. Oxford) "Gravitational Wave Astronomy"

The editor of "SpaceWatch" is Andrew Ramsey, who would very much appreciate your stories & contributions. Please send any news, observations, photos, etc. to:

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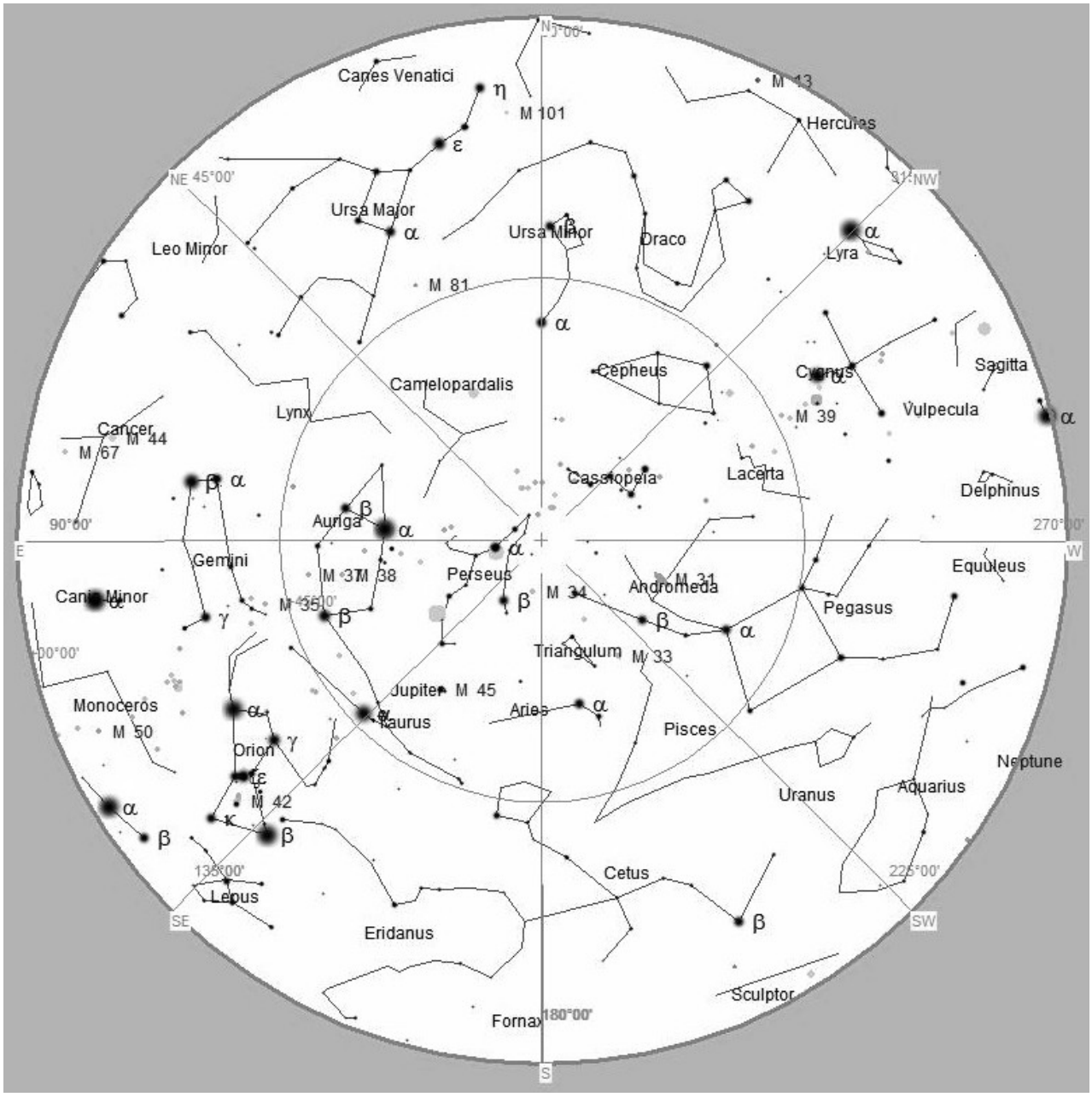
ANALYSING ANDROMEDA

Go to www.andromedaproject.org for your chance to start classifying star clusters in our nearest neighbour galaxy M31, the Great Spiral in Andromeda. Like Galaxy Zoo, ordinary people like you are required to sift through thousands of images of the Andromeda galaxy from PHAT, the "Panchromatic Hubble Andromeda Treasury". As well as classifying star clusters, you will be identifying distance galaxies seen through M31.

STAR CHART



The Night Sky at 9pm (GMT) next Saturday (15th Dec.)

Perseus is right overhead. The Square of Pegasus and Andromeda are high in the south-west. Cygnus is setting in the west.

Orion has risen in the east. Follow Orion's belt upwards and to the right and you will come to bright reddish Aldebaran, the eye of Taurus the bull. Beyond there are the Pleiades, or Seven Sisters, a nebula or gas cloud where new stars are condensing.

The brightest object you will see though is Jupiter, not far from the Pleiades. A small telescope will show its four main moons, Io, Europa, Ganymede and Callisto. Here are their positions for the time of the chart. Don't forget that in a telescope the whole view will be upside-down!