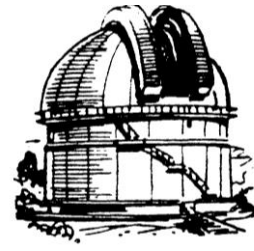

Journal

of the



Nottingham Astronomical Society

May 2004

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Thursday 6th May

at the Djanogly City Technology
College

Doors open from 7.30pm

Tonight is a

Members' Evening

COMET 2001 Q4 (NEAT)

We should have a naked-eye comet on view this month! Comet NEAT (named after the Near Earth Asteroid Tracking system) has been in the southern hemisphere so far but should become visible from the U.K. around the beginning of the second week of May. It will be low in the west after sunset, and probably around magnitude 3. On the 15th it will be at perihelion (a little closer to the Sun than we are) and will by then have climbed into Cancer, with its tail almost parallel to the horizon. Given clear skies it should be easy to spot, and should still be around magnitude 4 at the end of the month, as it heads toward the Plough. However by then moonlight will be a problem for observation.

Sky Notes

2004 May

Compiled by Roy Gretton

All times quoted are U.T.



THE MOON

Full Moon 4d 20h 33m
Last Quarter 11d 11h 04m
New Moon 19d 04h 52m
First Quarter 27d 07h 57m

THE PLANETS

Mercury will be at greatest western elongation on May 14th, 26° from the Sun, but even so will not be well placed for observation from the UK, being very low in the bright sky before dawn.

Venus, in a special respect, is the planet to watch! This month it will be moving in rapidly towards the Sun (at almost one degree per day) preparing for its journey across the solar disk (as viewed from Earth) on June 8th. It remains the brightest object in our sky, apart from the Sun and Moon.

Mars continues to fade in the evening sky, as it, too moves towards the Sun (conjunction will be on September 15th). It will be 3° south of the Moon on the 22nd.

Jupiter, magnitude -2, in Leo, is very well placed for observation in the evening sky. It will be 3° south of the Moon on the 27th.

Saturn, is easy to find in the constellation of Gemini, but is now setting before midnight and so best seen soon after sunset. It is now a little fainter than magnitude zero.

Uranus and **Neptune** continue to be almost unobservable this month.

COMETS

The main one to watch out for is Comet 2001 Q4 (NEAT), in the evening sky – see front cover. But two other comets will be visible in the morning sky (neither of them naked eye objects, but possibly visible through binoculars). They are Comet 2003 K4 (LINEAR), in Cygnus, and Comet 2003 T3 (Tabur) in Andromeda.

It is Southern Hemisphere observers who should have the best comet treat this month, as Comet 2002 T7 (LINEAR) is expected to reach magnitude 1, or thereabouts.

DIARY DATES

Meetings of the Nottingham Astronomical Society

Thursday 6th May

Djanogly CTC

Doors open from 7.30pm

Members' Evening

Includes a video about the Mars Rover missions

Thursday 3rd June

Djanogly CTC

Doors open from 7.30pm

The Exploration of the Moon

Dr Mike Leggett FRAS FBIS

Thursday 1st July

Djanogly CTC

Doors open from 7.30pm

Beagle 2 Mars - The Challenge Continues

Derek Pullan

Beagle 2 Instrument & Science Operations Manager

University of Leicester

August – Summer break, no meeting

Thursday 2nd September

Djanogly CTC

Doors open from 7.30pm

Update on European/UK Space Science Programmes

Prof Ken Pounds

Dept of Physics & Astronomy, University of Leicester

Thursday 7th October

Meeting at the NAS Observatory Site

An opportunity to use the large telescope, weather permitting!

Thursday 4th November

Djanogly CTC

Doors open from 7.30pm

NAS Annual General Meeting

Thursday 2nd December

Djanogly CTC

Doors open from 7.30pm

X-Planes and Lifting Bodies

James Ince

(This talk to be confirmed for this meeting)

DIARY DATES continued

Other events

Mansfield & Sutton Astronomical Society

Sherwood Observatory

Sun 16th May:

Telescope Exhibition in conjunction with the Widescreen Centre, from 10 am

Tuesday 25th May, 8 pm:

Mining for WIMPs: Searching for Dark Matter in Britain's deepest mine

Dr Sean Paling, Sheffield University

Tuesday 8th June

Transit of Venus

In this rare event, Venus will cross the Sun's disk as seen from Earth, for the first time since 1882.

Orpington Astronomical Society has an informative webpage about the transit:

<http://www.chocky.demon.co.uk/oas/venus.html>

Saturday 26 June 2004

11:00 -18:00

British Astronomical Association Exhibition Meeting

The Cavendish Laboratory

Madingley Road

Cambridge

A successful BAA Workshop meeting in Nottingham

Last month's British Astronomical Association "Observers' Workshop" meeting in Nottingham (which the NAS helped to organise) was a big success. There were about 70 people there and the hall was full for each of the five talks during the day. All of the talks were informative and entertaining and an excellent lunch was provided free by the BAA. We even had sunny weather for the group photograph taken outside in the afternoon!

It was good to see a number of NAS members at the meeting and I hope everybody had as good a time as I did. I am glad that we were able to bring the BAA to Nottingham – it was the first such meeting of theirs to be held here. The BAA were very pleased with the venue of Nottingham High School for Girls, and I have thanked the School for preparing everything so well. The day really did run like clockwork.

The BAA have thanked the NAS for our help and would like to come to Nottingham again. So I hope this event really has helped to "put us on the map".

Nottingham Astronomical Society Annual Dinner A great evening out!

Also in April, NAS members and guests gathered at the Newstead Restaurant at Clarendon College for the Society's annual dinner. There were nineteen at the dinner, the company was (as always) excellent, the food was great and the value superb at £8 per head for a three course dinner. Same place again, next year? Why not!

Paul Stocks
NAS Secretary

X-Ray Astronomy: A follow-up to April's talk

We much enjoyed the talk at our April meeting by Dr Darren Baskill of Leicester University on the topic of X-Ray Astronomy. Darren answered many questions from NAS members, but said he would need to go away and think about the answer to a question about emission of x-rays from planets.

A few days later, Darren e-mailed me with his answer, including links to some relevant webpages:

"I have been investigating the answer to the question asked at the end by one of your members, as to why I said planets emit X-ray via fluorescence, while I blamed a bow shock for comets - a fantastically good question! Well, it looks like both mechanisms are valid for both planets & comets, and the question (which is still not answered) is which mechanism dominates. The following links actually describe a possible 5 different mechanisms for generating X-rays in comets & planets

<http://spaceflightnow.com/news/n0312/15marsxray/>

http://heasarc.gsfc.nasa.gov/docs/xmm_lc/news/archive/2001/03_21_01.html

Looking deeper into the research papers, I found the following using ADS:

<http://ukads.nottingham.ac.uk/cgi-bin/nph->

[bib_query?bibcode=2003AGUFMSM31C1122B&db_key=AST&high=3fcde9005721544](http://ukads.nottingham.ac.uk/cgi-bin/nph-bib_query?bibcode=2003AGUFMSM31C1122B&db_key=AST&high=3fcde9005721544)

"Analysis of observational data shows that either charge exchange model or fluorescent scattering of solar x-rays cannot explain the whole set of observational data [for Mars & Venus]. The premise of this paper is that x-ray emission of both planets is a combination of line k-shell radiation and Bremsstrahlung produced by energetic electrons interacting with planetary atmospheres. Due to the absence of their planetary magnetospheres, planetary bow shocks are located quite close to the ionospheres and on both planets their ionospheres are directly exposed to the shocked solar wind flow."

In other words it looks like your member was exactly right! Planetary bow shocks do emit X-rays, as do cometary bow shocks, and my assumption that planetary emission is purely fluorescent scattering was wrong (in my defence, my thesis was based on stars! Anything this side of proxima Centauri I know little about!). As the paper I cite above says: "fluorescent scattering of solar x-rays cannot explain the whole set of observational data [for planets]".

Also: "...x-ray emission of both planets is a combination of line k-shell radiation [k-shell radiation is fluorescence i.e. X-ray photons from the sun interact with an atmospheric atom such that a lower energy X-ray is re-emitted] ... and Bremsstrahlung [the German word meaning "breaking radiation"] produced by energetic electrons interacting with planetary atmospheres [when these energetic electrons are slowed by the interaction, they give off X-rays]."

Please congratulate your NAS member for being so sharp!"

More on planetary X-rays:

X-ray emission from Saturn:

<http://www.star.ucl.ac.uk/~apod/apod/ap040312.html>

The paper that goes along with the pretty photo above can be located at:

<http://publish.edpsciences.org/articles/aa/abs/2004/16/aa0736/aa0736.html>

(dated: 7 January 2004) where the last line of the abstract is: "...but a definitive explanation remains an open issue. "!

Many thanks to Darren. I have invited him to visit our observatory (he is also an amateur astronomer!), when we have our large telescope up and running.

Paul Stocks

Small Advertisements

For Sale

Maksutov 6-inch by Drew. 2x2-inch finderscopes, equatorial tripod mount with circles, eyepiece tray, carry box. Selection of eyepieces, Barlow lens, star diagonals.

Buyer collects. **£495** for prompt sale.

**Telephone Peter Davison
on 0115 923 0040**

The Widescreen Centre

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You are always made welcome at our shop or a telephone call to Lynda will bring you our latest catalogue

The Nottingham Astronomical Society: E – SERVICES

The Journal

To register for your FREE Journal, just E-mail Carl Brennan at carl.stella@virgin.net - You don't have to be a Society member to take advantage of this service.

Observatory Group

A web group page and message service has been set up at

<http://uk.groups.yahoo.com/group/nottinghamastronomicalsociety/>

It will be used for circulating information about the observatory construction and projects, large telescope up-dates, and use of the site by members of the Observatory Group. Please visit the web site and E-mail on line if you wish to join (NAS Members only)

Nottingham Astronomical Society

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APPLICATION FOR MEMBERSHIP

If you would like to join the Nottingham Astronomical Society, please complete and tear off this slip. Make your cheque/postal order payable to:

THE NOTTINGHAM ASTRONOMICAL SOCIETY

Then send the slip and payment to Paul Stocks, Hon. Secretary, **Nottingham Astronomical Society**, 22 Killerton Park Drive, West Bridgford, Nottingham, NG2 7SB

Alternatively you may hand the slip and payment to the Secretary or Treasurer at one of the Society's regular meetings.

Your name _____

Full address _____

_____ Postcode _____

I wish to join the Nottingham Astronomical Society and enclose the membership fee for

(please tick appropriate box)

- Full Adult £23
- Junior (17 years or under) £11.50
- Concession (*full time student, UB40, Senior Citizen*) £11.50

Nottingham Astronomical Society

Affiliated to the British Astronomical Association
Member of the Federation of Astronomical Societies
Member of the Society for Popular Astronomy
Supporters of the Campaign for Dark Skies
Registered Charity No: 1066645

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Greg Eisenhauer

ORDINARY COMMITTEE MEMBER:

Joe Sowerby

Dorothy Sowerby

Meetings

Formal monthly meetings, with speakers, are held on the first Thursday of each month (except August, and occasionally other months as announced) at

Djanogly City Technology College

Sherwood Rise, Nottingham NG7

Doors open	7.30pm
Meetings Start	7.45pm
Meetings end	10.00pm

Non-members are very welcome at our meetings and there is no charge for the first meeting. We make a small charge of £2.50 adults, £1.25 juniors to non-members after their first attendance. Invited guests are admitted free of charge.

Annual Subscriptions, 2003-04

Full Adult:	£23
Junior (<i>17 years or under</i>)	£11.50
Concessions	£11.50
<i>(Full time student, UB40, Senior Citizens)</i>	

Subscriptions become due on 1 October. Half-price subscription is charged if joining after 1st April. Please make cheques payable to: **Nottingham Astronomical Society.**

If you would like further information about the **Nottingham Astronomical Society**, or would like to become a member, please contact the Honorary Secretary, Paul Stocks, at the address given above, or speak to any NAS committee member at one of the regular monthly meetings. A membership application form appears inside this issue of the Journal.
