

SPACEWATCH

the newsletter of the Abingdon Astronomical Society

12th January 2004

Bob Mizon

**(Campaign for Dark Skies Co-ordinator)
"14 Pioneers of Astronomy"**

Happy New Year. I hope you all had a relaxing Christmas. This is the time of year when the evenings are long, giving you ample time to do lots of observing – if only the clouds would stay away. Wait a few days for the Moon to dwindle, and as it rises a little later each day you should have plenty of dark sky time – assuming you are lucky enough to live away from street lights.

Have you ever noticed how many more stars you see when you go out at night in the countryside? There are still parts of Britain where the skies are very dark – much of Scotland, and most of mid and north Wales, for example.

Our speaker tonight knows all about dark skies and the lack of them. He is the co-ordinator at the British Astronomical Association for their Campaign for Dark Skies. If you want to know more about this, speak to him after the meeting, or talk to our own chairman, Bob Dryden, as he is the local contact for this campaign.

Clear skies! –Ed.

THE NIGHT SKY THIS MONTH

By Bob Dryden

Venus: is now gaining height in the evening and is difficult to miss at magnitude -4 towards the south-west. The planet is moving away from the Sun, reaching a distance of 40 degrees by the middle of February. The phase is slowly decreasing but it will still be gibbous (or 3/4 if you prefer) throughout the coming month or so. The evening of January 24th should be good as the crescent Moon will be just 4 degrees below Venus.

Saturn: High in the sky by late evening, Saturn is at its best now with the rings wide open. With the planet residing in Gemini, it reaches an excellent altitude as the night progresses. On a steady night the telescopic views will be superb.

Jupiter: Later in the night, the king of planets rises within the constellation of Leo. The best views are always when an object is high above the horizon, so Jupiter will be more conveniently placed later in Spring. Even so, late night watchers can study the planet throughout winter.

Of the other planets **Mars** is still on view in the evening in Pisces but it is steadily fading and diminishing in size so the views in a telescope are not great. **Mercury** will be in the morning sky but it will remain low in the south-east in and around Sagittarius so it will be hard to see. **Uranus** and **Neptune** are now too near the Sun to be seen.

Occultation:

There is an easy lunar occultation on January 14th when the Moon passes in front of magnitude 2.9 gamma Virgo. The bad news is it happens at 02.16 UT so you will have to make a special effort to see it. The star reappears shortly after at 03.03 UT. This is a bright star and any small telescope will show you the occultation.

Comet

Comet C/2002 T7 LINEAR is still in the evening sky crossing Pisces, close to the Square of Pegasus. It should be about 7th or 8th magnitude so might be visible in binoculars. This comet is slowly brightening but also getting lower in the evening sky. It is predicted to possibly reach first magnitude by about May but, unfortunately, it will only be visible in the southern hemisphere by then.

MOON PHASES:

Full: 7th Jan.; Last Qtr: 15th Jan.; New: 21st Jan.; 1st Qtr: 29th Jan.; Full: 6th Jan.

THIS MONTH'S DEEP SKY OBJECT

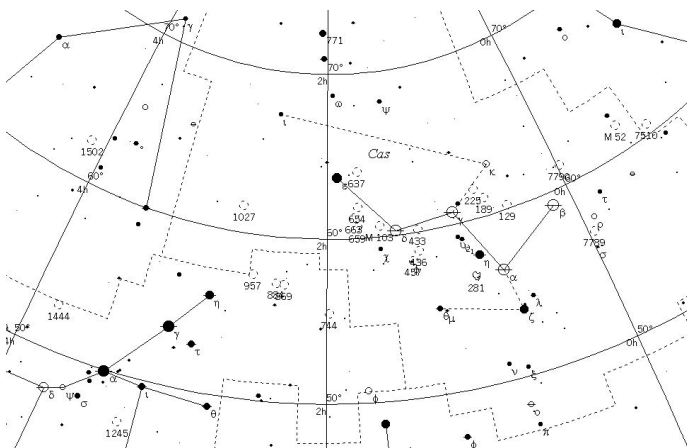
A Binocular Cascade

By Paul Warren

For this month's Deep Sky Object we will be well off the beaten track and looking into the unfamiliar constellation of Camelopardalis. This is one constellation where I sometimes wish that I had a GoTo facility on my telescope, as this constellation is pretty well devoid of any bright stars. I personally find this constellation a difficult one to navigate my way through. Camelopardalis does have some nice objects, so you do get rewarded for working your way through it, but care and patience are both required.

There are two objects, beside one another that I'll mention this month. The main one is a lovely cascade of stars, sometimes known as "Kemble's Cascade". This grouping of stars was described by Canadian astronomer Lucian Kemble, in Walter Scott Houston's Deep Sky Wonders column in Sky and Telescope. While sweeping with 7 x 35 binoculars in Camelopardalis, Kemble found "a beautiful cascade of faint stars tumbling from the northwest down to the open cluster NGC 1502".

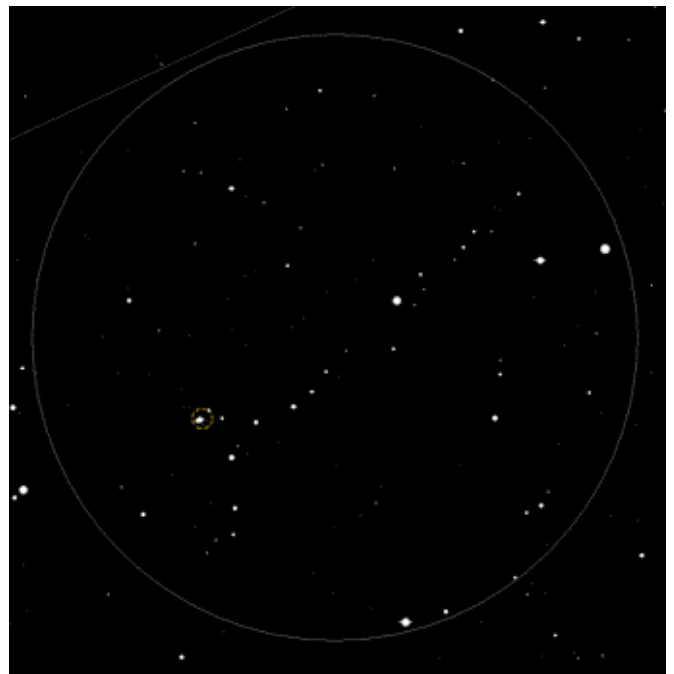
The easiest way of finding Kemble's Cascade is to start off from Cassiopeia. Referring to the diagram below, number the stars of the "W" as 1 to 5, working from left to right. Draw an imaginary line from 5 to 1, and carry on for about the same distance, and this will take you to Kemble's Cascade.



The cascade is a long chain of stars, looking like a celestial waterfall of 9th and 10th magnitude stars. The chain runs on for about 2½°, and at the bottom of it, it runs into the open cluster NGC 1502.

NGC 1502 stands out nicely from a relatively starless backdrop. It has about 45 stars that shine with a total brightness of about magnitude 5.7. The cluster is home to an interesting multiple star system, known as Struve 485. This system comprises nine components, seven of which are between 7th and 13th magnitude and should be within reach of a six inch scope.

The suggested way to observe these two objects is to use binoculars or your finderscope for Kemble's cascade. Then use your telescope to observe the little open cluster at the foot of the cascade.



Kemble's Cascade and NGC1502



Fourteen billion years ago, just after the Big Bang, the universe was an expanding fireball, white hot and nearly uniform. All of space was filled with elementary particles and radiation. "Soupy" is how some cosmologists describe it.

Today the universe is completely different. It's still expanding-even accelerating-but there the resemblance

ends. The universe we live in now is "lumpy." Great cold voids are sprinkled with glowing galaxies. In galaxies, there are stars. Around stars, there are planets. On one planet, at least, there is life.

How we got from there to here is a mystery.

Finding out is the goal the Galaxy Evolution Explorer, "GALEX" for short, a small NASA spacecraft launched into Earth orbit April 28, 2003. GALEX carries an ultraviolet (UV) telescope for studying galaxies as far away as 10 billion light-years.

"GALEX is a time machine," says astronomer Peter Friedman of Caltech. Because light takes time to travel from place to place, pictures of distant galaxies reveal them as they were in the past. "GALEX is investigating the evolution of galaxies over 80% of the history of our universe."

The Hubble Space Telescope can see faraway galaxies, too, but GALEX has an advantage: While Hubble looks in great detail at very small regions of the sky, GALEX is surveying the entire sky, cataloging millions of galaxies during its 2-year mission.

GALEX is a UV mission for a reason. Friedman explains: "UV radiation is a telltale sign of star birth." Stars are born when knots of gas condense in interstellar clouds. The ones we see best are the big ones-massive stars that burn hot and emit lots of UV radiation. "These stars are short-lived, so they trace recent star formation."

Understanding star formation is crucial to studies of galaxy evolution. When galaxies collide, star formation surges. When galaxies run out of interstellar gas, star formation wanes. In galaxies like the Milky Way, spiral arms are outlined by star-forming clouds. The shapes of galaxies, their history and fate \hat{S} they're all connected by star formation.

Even life hinges on star formation, because stars make heavy elements for planets and organic molecules.

"Our measurements of UV radiation will tell us both the rate at which stars are forming in galaxies and the distances of the galaxies," says Friedman.

How did we get here? GALEX will show the way.

Find out more about GALEX at www.galex.caltech.edu. For children, visit The Space Place at spaceplace.nasa.gov/galex_make1.htm and make a beautiful galactic mobile while learning about some of the different shapes galaxies can take.



This image of Messier 101 (M101), also known as the "Pinwheel Galaxy," was taken in two orbits of GALEX on June 20, 2003. M101 is 20 million light years away.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

NOTICES

Mailing List: Yet again, we are having trouble with our Topica e-mail system. If you haven't had any messages for a long time then you have probably been unsubscribed by Topica, so you will obviously have to resubscribe yourselves (see below for how to do this).

FURTHER DISCUSSION

The society's e-mailing list is used by members to comment on all things astronomical, as well as other related and not-so-related subjects. The list is also used to publicise "first-clear-night" observing evenings and for alerting members to hot observing news.

To subscribe: send an email to abiaastro-subscribe@topica.com. You will then receive all e-mails sent to the list. To post e-mails on the list: send an email to abiaastro@topica.com. To unsubscribe: send an email to abiaastro-unsubscribe@topica.com

Don't forget the Society's web site:
www.abingdonastro.org.uk

Our webmaster, Chris Holt is always on the look-out for members photographs to put on there. Don't forget you can read back copies of Spacewatch on the web site too.

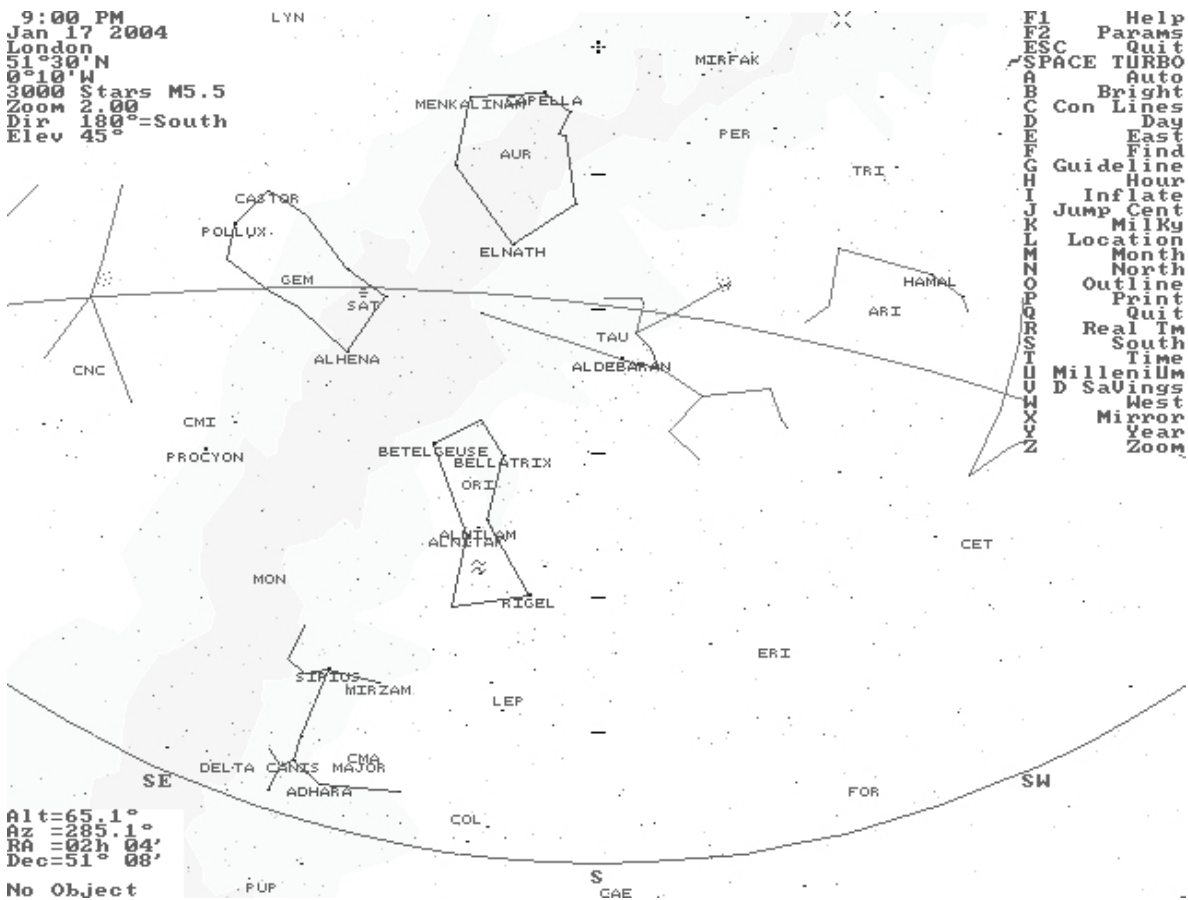
DATES FOR YOUR DIARY

19th to 21st Jan. (FCN): 8pm. Observing Evening, Britwell Salome.

2nd Feb.: 8pm. Beginners' Meeting in the Perry Room.

9th Feb. 2004: 8pm. Talk by Sebastian Linfoot (Abingdon Astronomical Society) "Asteroids – The Vermin of the Sky?"

The editor of "SpaceWatch" is Andrew Ramsey, who would very much appreciate your help and contributions. Please send any news, observations, photos, etc. to:
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 E-mail: AbiAstro@ATRamsey.com Phone: 01865 245339



STAR CHART

The star chart at left show the view looking south at 9pm next Saturday evening. Orion is in the south-east, Saturn ("SAT") above left of Orion in Gemini (look out for the two stars named after the twins Castor and Pollux).

The ragged grey band at top left is the Milky Way.

Follow the three stars of Orion's belt down and to the left and you cannot fail to notice bright Sirius, the brightest star in the whole sky – apart from the Sun of course! Sirius is fairly low down and therefore twinkles quite a bit. This is purely an atmospheric effect. From more southerly latitudes Sirius is more overhead and is much steadier.

The chart is also valid for about 8pm on the 30th as Saturn does not move much in this time.